SOUTH MARKETING ISSUE
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DDT Opponents To Appeal Trial Judge's Finding

Long Island Residents' Attorney Hopes to Reverse Outcome of Court Trial

NEW YORK—Plaintiffs in the "DDT Case" who lost their fight to halt mass insecticide sprayings will appeal their case.

The move to return to the courts was announced within a few days after Federal Judge Walter Bruchhausen handed down his precedent-setting decision June 23. (Croplife, page 1, June 30). Announcement of the appeal was made in a letter to interested parties by one of the 14 co-plaintiffs.

While the letter did not directly solicit additional funds to carry on the fight, it is presumed that this is what is behind the letter.

Plaintiffs solicited funds from interested parties earlier this year before the DDT case came up in court the first time. As was brought out in testimony, about $15,000 was collected—half from solicitations. One plaintiff sent out 2,000 letters asking for support. Contributions were turned over to the Lee Foundation for Nutritional Research, Milwaukee, which in turn paid costs of the trial.

The proposed court appeal prob-

(Turn to APPEAL, page 21)

Florida Tonnage

TALLAHASSEE, FLA.—Florida fertilizer shipments during May totaled 233,697 tons, according to the Florida Department of Agriculture. This total included 168,023 tons of mixed goods and 65,674 tons of materials.

Sterile Screwworm Flies Released in Southeastern States

WASHINGTON—Fifty million radioactively sterilized screwworm flies (half of them males) will be pitted against native or wild members of their species each week when the screwworm-eradication campaign in the Southeast reaches full-scale operation late this summer or early fall. This joint undertaking by Southeastern states and USDA will take place over an area of about 50,000 to 75,000 square miles, including all of peninsular Florida.

Tests have shown that sterile male screwworm flies can compete successfully with native males. A female mates only once, and when she mates with a sterile male fly her eggs do not hatch. By continuing the release of large numbers of sterile male screwworm flies over the infested

(Turn to SCREWWORM, page 20)

Cotton Restrictions Altered by Senate in New Farm Legislation

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—A reconciliation of acreage problems for the cotton industry within Congressional, USDA and White House circles was deemed last week as likely to result in approval of the Senate farm bill which would make available for cotton producers next year not less than 16 million plus acres planting allotment.

The Senate farm bill now virtually assured of passage through a bipartisan agreement in the Senate chamber and now believed to reflect the Democratic leadership in the House is geared to relief for the cotton farm community.

Congressional gymnastics last week clouded the farm legislative methods, the result is that the Senate will pass its farm bill; it will at the same time re-pass its extension bill for Public Law 480 and add to the Senate committee-approved measure the wool bill.

Other attempts to add to the Senate bill such amendments as the two-price plan for wheat—or the milk "self-help" bill are certain to be rejected if offered on the Senate floor.

For the plant food industry, the outlook for farm legislation for the coming crop sales year is for greater latitude in farm production judgment than in the past under USDA-imposed acreage allotments for the basic commodities.

The heart of the Senate farm bill

(Turn to FARM BILL, page 20)

GOOD MANAGEMENT PAYS OFF

Grazing Program in Georgia Points to Better Farming

ATHENS, GA.—The continuing cooperation of the fertilizer and lime industry in Georgia with the Agricultural Extension Service of the University of Georgia is bringing about desirable changes on the state's farms, it was stressed by leaders of both organizations at a series of fertilizer conferences honoring winners in the Georgia grazing system program.

Jointly sponsored by the Georgia Plant Food Educational Society and the extension service, the four district meetings throughout the state drew about 600 fertilizer and lime manufacturers, dealers and salesmen, extension workers, bankers, merchants and farmers to four outstanding farms in the state to hear about changes in the state's agricultural development and to see first hand results of good grazing system management, including adequate liming and fertilization.

Honored at the meetings were state, district and county winners in the grazing system program sponsored by the plant food society and conducted by the extension service. Meetings were held July 1-2 and July 9-10.

First place honors went to Ernest Nunn, Jackson County farmer, with second going to John I. Spooner, Seminole, who also was district winner. Banks dairy farm of Bulloch

(Turn to GEORGIA MEETING, page 20)

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Year-Round Fertilizer Sales Mean More Profit

By G. A. Wakefield
Olin Mathieson Chemical Corp.
Little Rock, Ark.

JUST how to "move it down to the farm"—all year long has been a thought-provoking question to the fertilizer industry for a great many years. It has long been recognized that most manufacturing plants and businesses operate more efficiently if they can maintain a fairly uniform flow of trade throughout the year. And such would be the case with the fertilizer industry. However, the major portion of sales come in two seasons—spring and fall.

Constantly faced with this problem of two-season selling, members of the fertilizer industry have done a lot of thinking and planning and the subject usually pops up when fertilizer manufacturers and/or dealers get together. A lot of ideas have been discussed; many with a great deal of merit.

Let's look at some of them and see just how we can apply them to the markets today.

The method of applying fertilizers to already established crops during off-season periods is a way of increasing off-season sales of fertilizers that is more evident and easier to understand than most of the others. In fact, applying fertilizer to crops already established at a time when the farmer is least busy is just good common horse sense. Like the fertilizer manufacturer and dealer, the practical farmer is also looking for ways to round out his yearly work load. This off-season program is easy to sell to him, whenever it is agronomically sound.

Introduce Profitable New Crops

Introducing new crops in any dealer's sales area is usually a much more difficult task. Most of us resist a change and good farmers are no exception. But this field has possibilities in most of the good farming regions of our country. In general, where new crops have been introduced into a one-crop farming operation, the program has met with gratifying success. It has been noted that many areas now are producing from two to several more crops each year—and doing it very profitably.

The practice of storing fertilizer in the soil can be used in most of the northern half of the country. It provides an outlet for larger quantities of fertilizers more readily than the first two mentioned. Preplant and plow down application of fertilizers is not at all new, but there is still room for a great deal of expansion. Two advantages are easily seen in applying fertilizers this way.

First, it enables farmers to put down fertilizer during a normal tillage operation.

Second, it is good assurance, if applied preplant, that the crop will

(Turn to SALES, page 17)

Norman D. Thomsen

JOINS GEIGY — Geigy Agricultural Chemicals, division of Geigy Chemical Corp., announces the appointment of Norman D. Thomsen as sales representative in the upper north central states, including Wisconsin, Iowa, Minnesota, North Dakota, South Dakota, Montana and northeastern Wyoming. Mr. Thomsen comes to Geigy from the Diamond Blackleaf division of Diamond Alkali Co. where he was staff assistant to the general sales manager. Previously he had been associated with Geigy Agricultural Chemicals in the midwest and with the Ralston Purina Co. as a district salesman. Mr. Thomsen is a native of South Dakota and was graduated from South Dakota State College in 1950. He will make his headquarters in Minneapolis.

Ohio Field Day to Show Research on Fertilization

POINT PLEASANT, OHIO—The 1958 Ohio Valley Agronomy Day program will deal with corn, forage crops, and tobacco, when it is held at 1 p.m. on Thursday afternoon, July 24.

The Agronomy Day activities are held here each summer to give farmers and other interested persons a chance to visit the station and see the research being done.

Nine corn experiments are going on at present, including corn fertilization, chemical weed control in corn, legumes seeded in corn, hybrid corn and dwarf corn trials, seedbed preparation, wide-row planting, nitrogen application, and irrigation for corn.

Tobacco experiments include variety trials, irrigation treatments, and fertilizer applications.

Other research projects deal with variety trials of sorgo, grain sorghum, millet, sudan grass, and alfalfa. Ladino clover-grass mixtures are being tested, as are some new ideas in crop rotations. The control of insect pests of alfalfa will be discussed at the field day.

Expands Plant

MEMPHIS—The Hooker Chemical Company has announced plans for an expansion program comprising a $1 million addition to its Columbus, Miss., plant producing sodium chlorate for weed eradication in farming, cotton defoliation, and pulp bleaching. The expansion will bring Hooker's total investment in the Columbus plant to about $7 million, R. Lindley Murray of Niagara Falls, N.Y., board chairman, said.

TO EXPAND CAPACITY

SAINT LOUIS, MICH.—Michigan Chemical Corp. has announced plans for the construction of a new seawater magnesia plant at Port St. Joe, Fla., which will enlarge the company's present natural brine facility at Saint Louis, Mich.

Meadow Nematode Threat to Peanuts

WASHINGTON, D.C.—Nematodes haven't been considered a threat to peanuts, but research now shows peanuts are often heavily damaged by meadow nematodes.

This finding suggests that agronomic practices need improvement, especially where peanuts are rotated with other highly susceptible crops.

Meadow nematodes had been overlooked because these pests center their feeding on the fruiting pegs and shells of the peanut plant, rather than on the roots, where cotton, corn, and tobacco are primarily damaged, the U.S. Department of Agriculture says. This habit of meadow nematodes has just been discovered in cooperative studies by USDA and the Georgia Agricultural Experiment Station.

L. W. Boyle, Georgia pathologist, started the studies at the Experiment, Ga., substation some years ago. He showed that the meadow nematode (Pratylenchus brachyurus) can be carried into noninfected soil on the shells of infested peanuts. Shelled seeds, however, did not infect the soil since the pest does not enter the kernels. By fumigating infected soil, Mr. Boyle reduced harvest leavings of nuts in the soil by 20 to 50%. He concluded that the infections cause many nuts to be left in the soil at harvest and that the leavings, in turn, build up infection in the soil.

More recent studies by J. M. Good, ARS nematologist, fortified this belief. In a field at the Coastal Plain substation, Tifton, where many peanuts had been left by the harvester two years before, there were large patches of chlorotic plants in the current peanut crop. Mr. Good found many nematode lesions on the pods in those patches. (Nematode lesions are dark to purplish brown areas with a distinct margin, in contrast to lighter colored rot lesions that blend into the background of healthy tissues.)

There were adults, larvae, and eggs of the nematode in those dark lesions—frequently several hundred adults in a single lesion. In fact, gram for gram, lesion-marked pods had six times as many nematodes as the roots of the same plants or the pods of plants from healthy areas. (In another study, there were eight times as many nematodes on pods as on roots.)

Mr. Good proceeded to prove that the nematode is capable of remaining alive in shells after harvest, even after the customary drying of the nuts to 10% moisture. He also proved that the nematodes in shell of peanuts left in the ground after harvest can infect the next crop. He fumigated potting soil to kill the nematode and planted 15 nematode-infected peanuts in each of certain pots. The pots were left outdoors all winter. During the following summer, heavy nematode infestations showed up on peanuts and corn grown in the pots thus inoculated with the pest. Plants grown on the fumigated soil without buried nuts remained nematode free.

In one study, row fumigation of the field plots before planting reduced nematode counts by 93 to 98% and improved yields. More farm trials will be needed, however, to learn whether it may pay to fumigate rows for planting or to sidedress with nematocides as blooming starts.

If peanuts are harvested early and a clean job of harvesting is done, most of the pests in shells will be removed. In that case, there is no objection to keeping the peanuts in rotation along with the even-more-susceptible cotton, corn, and tobacco, USDA says.

OUT OF SITE; OUT OF MINE

SAN FRANCISCO—A San Francisco newspaper columnist in discussing odd names and geographical misnomers in a recent article, observed: "The San Francisco Chemical Company is not here, but in Montpelier, Idaho, where it produces no chemicals whatever; it merely mines its own business, which happens to be phosphates."

Alfalfa Days Being Held In Georgia Communities

ATHENS, GA. — While Georgia's alfalfa acreage has increased from 25,000 to 30,000 acres in the past two years, agronomists of the agricultural extension service estimate that at least 100,000 acres are needed to meet the growing demand for quality hay.

In order to stimulate more interest in alfalfa plantings, the extension service is conducting a series of alfalfa field days in North Georgia during July. The field days are held at the farm of a farmer who is doing a good job of alfalfa production, according to Charles R. O'Kelley, extension agricultural leader for the University of Georgia College of Agriculture.

Dates, locations, host farmers and their addresses for the remaining field days are as follows: July 17—Oconee County, W. C. Hale, Watkinsville; July 18—Newton County, A. C. Ewing, Route 4, Covington; July 21—Polk County, L. C. Carlton, Route 1, Rockmart; July 22—Floyd County, B. C. Morgan, Route 3, Rome; July 23—Murray County, James Loughridge, Chatsworth; and July 24—Habersham County, Artist Glaze, Mt. Airy.

Three speakers discuss the importance of various plant food nutrients to alfalfa production. They are P. J. Bergeaux, extension fertilizer specialist, lime and phosphate; Fielding Reed, American Potash Institute, who discusses potash, and Jim Turner, United States Borax and Chemical Corp., who speaks on borax.

IMC Names Colleges to Receive $125,000 for Fertility Research

CHICAGO—International Minerals & Chemical Corp. has announced that its 1957-58 grant-in-aid program for research in plant nutrition and soil fertility totaled $125,000 to 25 colleges and universities.

The allocation during the fiscal year just ended brings International's total for similar work to more than $1 million in the past 15 years. The grants are administered by the company's research division.

Corporation spokesmen said IMC-financed studies, under the direction of research scientists in schools receiving aid, were directed chiefly toward fundamental plant physiology and nutrient requirements.

Colleges and universities which received grants include:

University of Kentucky, Kansas State College, Texas A&M College, Mississippi State College, Virginia Polytechnic Institute, Penn State University, University of Rhode Island, University of Wisconsin, Michigan State University, University of New Hampshire, Alabama Polytechnic Institute, Purdue University, University of Missouri, Louisiana State University, Oklahoma State University, University of Illinois, University of Minnesota, North Carolina State College, University of Tennessee, University of Maine, Ohio State University, Washington State College, Cornell University, University of Florida, and University of California.

Mid-South Battles Low Temperatures, Too Much Rain, Insect Pests

MEMPHIS — Many Mid-South farmers have been keeping a close eye on low temperatures and increasing insect activity in their fields.

In Mississippi, crops are generally good but suffer from excessive rain in some localities. Record low temperatures for several days caused some concern since cotton will not set squares at such temperatures. Boll weevil infestation was generally heavy in older cotton in the Mississippi hill section and spotted and light in the Delta area. Extension entomologist A. G. Bennett said boll worms are present in most older cotton and that plant bugs, tarnished and rapid, and fleahoppers are a problem.

Excessive moisture in some localities has delayed cultivation and side dressing. Other counties report that corn is being given side dressing and final cultivation. Some late corn is being damaged by budworms.

In Arkansas, C. A. Vines, associate extension director, reported that most of the state received needed rains, but that cotton in northeast Arkansas was in poor condition, compared to last year.

European corn borer larvae are beginning to pupate. These corn borers are numerous in the northeast, east, and southeast areas of Arkansas, and the predicted emergence of moths was July 5-10. Reports indicate the Southwestern corn borer larvae have begun pupating in several counties.

Garden webworms are on the decline, but they still remain in some fields of young soybeans.

Boll weevil emergence is still light in all areas except southwest Arkansas, with none of the square infestation counts running higher than 15%. In general, aphids and spider mites were reported on the increase while few fleahopper and plant bugs were found in cotton fields.

Cotton is growing rapidly in most sections of West Tennessee. Only a very limited number of boll weevils have been found in the southern counties this season. A slight increase was reported in thrip activity, and both heavy and light aphid infestations were reported. Flight damage was noted from flea beetles and flea hoppers. Corn borers are appearing in corn and garden webworms in corn and cotton.

Grace Employees Turn Down Bid from Unions

MEMPHIS—Workers at the Grace Chemical Co. plant here have voted to reject two unions in National Labor Relations Board elections.

Employees voted 122 to 36 against the International Chemical Workers (AFL-CIO). The union sought to organize production and maintenance workers.

The International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers (AFL-CIO) sought to organize maintenance personnel only. The union was rejected by a 52 to 2 vote.

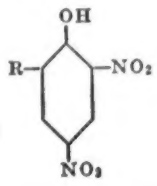
CRANBERRY EXPERT DIES

EAST WAREHAM, MASS. — Dr. Henry J. Franklin, 75, for 43 years director of the Massachusetts cranberry experimental station at East Wareham, is dead. The founder of the station in 1909 had retired in 1952. He was credited with discovering the worms and other pests which nearly destroyed the crop in the early 1900's. He also was a weather expert and set up a warning system which made it possible for growers to flood bogs to protect their cranberries from frosts.

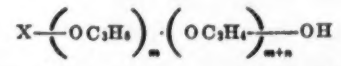
Industry Patents and Trademarks

2,841,482

Herbicidal Chemical Compositions. Patent issued July 1, 1958, to Arthur W. Swezey, Garden Grove, and Robert W. Nex, Bellflower, Cal., assignors to the Dow Chemical Co., Midland, Mich. A composition of matter comprising a component (1) which is a 2,4-dinitro-6-alkyl-phenol of the formula



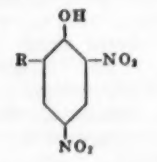
wherein R represents an alkyl radical containing from 3 to 5 carbon atoms, inclusive, and a component (2) which is a polyglycol aryl ether-alcohol compound of the formula



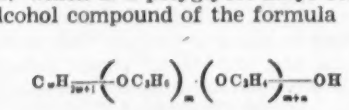
wherein X represents an aryl radical of the benzene series having a molecular weight of at least 91, m represents an integer from 4 to 8 inclusive, and n represents an integer from 0 to 6, inclusive and containing at least about 3 moles of component (2) for each mole of component (1).

2,841,483

Herbicidal Chemical Compositions. Patent issued July 1, 1958, to Arthur W. Swezey, Garden Grove, and Robert W. Nex, Bellflower, Cal., assignors to the Dow Chemical Co., Midland, Mich. A composition of matter comprising a component (1) which is a 2,4-dinitro-6-alkyl-phenol of the formula



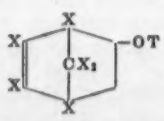
wherein R represents an alkyl radical containing from 3 to 5 carbon atoms, inclusive, and a component (2) which is a polyglycol alkyl ether-alcohol compound of the formula



wherein w represents 12 to 16, inclusive, m represents from 0 to 5, inclusive, n represents from 3 to 10, inclusive, and the total number of alkylene oxide groups in the molecule is between 9 and 13, inclusive, and containing at least about 4 moles of component (2) for each mole of component (1).

2,841,484

Biological Toxicants Comprising Hexahalobicycloheptenols and Esters Thereof. Patent issued July 1, 1958, to William K. Johnson, Dayton, Ohio, assignor to Monsanto Chemical Co., St. Louis, Mo. A herbicidal and fungicidal composition comprising an inert carrier and, as the essential effective ingredient, a compound of the formula



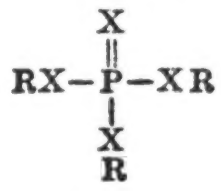
where X is halogen and T is selected from the group consisting of hydrogen, hydrocarboncarbonyl radicals, and hydrocarboncarbamyl radicals.

2,841,485

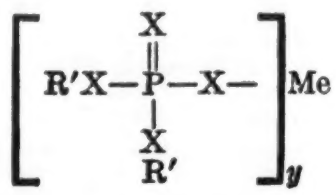
Hexahalocycloheptenediols and Derivatives Thereof. Patent issued July 1, 1958, to William K. Johnson, Dayton, Ohio, and Tad LeMarre Patton, Houston, Texas, assignors to Monsanto Chemical Co., St. Louis, Mo. The method of destroying vegetation which comprises applying to living plants a phytotoxic amount of a herbicidal composition comprising an inert carrier and, as the essential effective ingredient, 1,4,5,6,7,7-hexachlorobicyclo (2.2.1) - 5 - heptene-2,3-diol.

2,841,486

Plant Defoliating Method Employing Di-Tri-, and Tetrathiophosphoric Acid Derivatives. Patent issued July 1, 1958, to Charles W. Osborn and Lyle D. Goodhue, Bartlesville, Okla., assignors to Phillips Petroleum Co. A method for defoliating cotton which comprises applying to the leaves of said plant, when it is mature, a composition comprising dispersed in a non-aqueous defoliant adjuvant carrier a defoliating quantity of a compound which can be represented by one of the formulas consisting of



wherein X is selected from the group consisting of oxygen and sulfur, at least 2 X's being sulfur; wherein R is selected from the group consisting of hydrogen, alkyl, aryl, aralkyl, alkaryl and cycloalkyl groups and not more than one R is hydrogen;



wherein X is selected from a group consisting of oxygen and sulfur with at least 2 X's being sulfur, Me is a metal selected from groups I-A, II-A, II-B, and IV-B of the periodic table, y is equal to the valence of Me, and R' is selected from the group consisting of alkyl, aryl, aralkyl, alkaryl and cycloalkyl groups; and wherein the alkyl groups contain 6-16 carbon atoms and the cycloalkyl groups contain not in excess of 16 carbon atoms with 5-6 carbon atoms in the ring.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Isochlorthion, in capital letters, for animal and plant destroying agents. Filed July 3, 1957, by Farbenfabriken

(Turn to **PATENTS,** page 19)

FIRST FROM DIAMOND

For contract sprayers . . . NEW Diamond six-pound formulations of low-volatile 2-Ethyl Hexyl Esters of 2,4-D and 2,4,5-T

These NEW six-pound concentrates by Diamond help custom applicators save money and time. They cost less than standard formulations, on an acid equivalent basis. And they reduce on-the-job handling . . . save truck space . . . because now only two containers (instead of three) provide a full 12 pounds of acid equivalent.

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Write today for complete information about this exclusive Diamond development. DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

INSECT AND PLANT DISEASE NOTES

Lygus Bugs, Other Pests Hit Arizona Cotton

PHOENIX, ARIZ.—Cotton is growing nicely in all parts of the state. Insects continue a problem in many fields. Farmers should watch their fields very closely and control insects whether they be sucking or chewing.

Graham County Agent Sears reports Lygus and fleahopper counts still high throughout the county. A few stink bugs are appearing in isolated areas. Ground equipment is being used mostly for spraying and dusting with good results.

Yuma County assistant agent Hazlitt reports Lygus continue to be the main insect. Stink bugs were found in the lower portions of the plants. Lygus counts average 6 to 13 per 100 sweeps on the Yuma-Mesa; 8 to 20 in the Gila Valley; 0-35 in the Yuma Valley with loopers, perforators and stink bugs noted. In the Somerton area 18 to 44 Lygus, these high counts being next to alfalfa being harvested. Roll, 8-12 Lygus and some bollworms; Wellton, 16-20 Lygus along with loopers and bollworms.

In Pinal County Lygus and cotton fleahoppers were found, especially nymphs of the true cotton fleahopper very numerous in many fields. Fields are being severely damaged and unless control measures are started soon the plants will be large with very little fruiting. Where control measures have been applied cotton is fruiting nicely.

Lygus, cotton fleahoppers, both the regular and black, still are causing injury to many fields in Pinal County, and controls will be profitable where counts are high.

Good progress in both stub and planted fields is reported in Maricopa County. Insects are the major problem in cotton and dusting or spraying is in progress in all areas. Lygus are the most troublesome. The nymphs or young of this insect are on the increase and causing the greatest damage. Cabbage loopers, leaf perforators, leaf rollers and stink bugs are also showing up throughout the county.—J. N. Roney.

Tree Diseases and Insects Feature Report

AMHERST, MASS.—There is no change in the apple scab situation this week. (July 1) Growers seem to be holding apple powdery mildew from spreading on Cortlands, Baldwins, and Macs by applying fungicide at intervals of less than 10 days.

Higher temperatures over the week end were favorable to codling moth, green aphids, and mites. A good spray should be deposited against codling moth during the next 3 weeks and include materials for aphids and mites before they develop damaging infestations. Control aphids on young and non-bearing trees. A few apple maggot flies have emerged in cages at Waltham.

Early and mid-season corn should be protected against corn borer. There should be a peak of egg laying and hatching following recent rains and higher temperatures.

Protect onions against both thrips and second brood maggot by thorough dusting or spraying of plants and soil surface every 7-10 days.

The second brood of cabbage maggot is now underway and may be more serious than usual on late cole crops, especially in the cooler, wetter parts of the state. Young plants may be protected now, or as set out during the next 2 or 3 weeks. Use the same methods and materials as used against the first brood. All cole crops should be protected against worms and aphids.—E. H. Wheeler and C. J. Gilgut.

Corn Borers on the Move in Iowa Fields

AMES, IOWA—European corn borer moth activity was high June 29 at Bancroft but dropped off June 30. At Ames and Ankeny good catches were gotten both the 29th and 30th. Six new egg masses per 100 plants were found on observation fields in Boone County.

Tall corn in west central Iowa (45-60 inches) is 65 to 96% infested and has 4 to 12 larvae per infested plant (avg. 7). These larvae are 59% 1st instar, 36% 2nd instar and 5% 3rd instar. One 5th instar larva (full-grown) was seen at Ankeny July 2.

Armyworm moths are showing up in large numbers in the light traps at Ames, Ankeny and Bancroft. Newly hatched armyworms were found in rain-lodged oats and bluegrass in Story County. If this is happening all over Iowa—as we think it is—these worms won't be full-grown when oats ripen. They will migrate to adjacent corn. Watch all lodged grain carefully for armyworms during the next 2 weeks.

Grasshoppers range from newly hatched to full grown in central and southern Iowa. Red-legged hoppers are small, differential hoppers are ½ to ¾ grown, 2-stripe and lesser migratory hoppers are adult. But populations are low—1 to 2 per square yard. No control appears necessary now.—Harold Gunderson.

Corn Borers and Aphids Reported in Minnesota

ST. PAUL, MINN.—European corn borer (Pyrausta nubilalis) moth emergence ranges from 95% to 100% in all districts. Egg deposition has increased but egg mass counts are still not high. The warm weather has increased moth activity and farmers should begin to check their corn fields for whorl feeding next week. Egg mass counts per 100 plants at present are as follows: SW, 0-44; SC, 0-16; WC 0-16; C, 0-4; SE, 0-8. Treatment should begin when 75% of the plants show recent whorl feeding.

Painted-lady butterfly (Vanessa cardui) larvae have been reported from Jackson and Nicollet counties feeding on thistles and cocklebur and, in at least one instance, have moved to soybeans. Examine soybean fields known to be infested with thistles. Spot treatment of thistles to prevent migration of larvae to crop plants is suggested. Spraying of entire soybean fields would pay only if larvae are small and high populations appear general throughout the field.

Pea aphid (Macrosiphum pisi) counts remain high in all districts. Counts range from 125-600 per 10 sweeps in alfalfa. Several reports received of extremely high population in six inch second growth alfalfa. Even with high populations, it is

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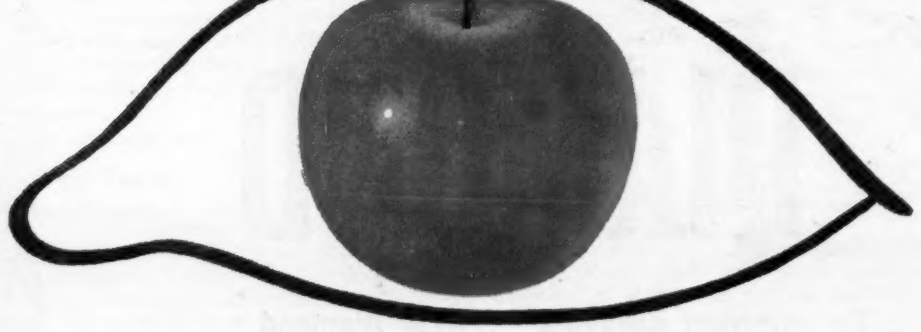

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questionable if chemical control can be justified on alfalfa.

Reports on the aphid situation this past week show great variation from field to field. Counts of over 200 per linear foot have been observed. A reduction in aphid populations has been reported in some areas. There is some indication of predator build-up. County agents and farmers should continue observations for damage—grain in late milk and early dough stage is no longer in danger of injury by this aphid.

Grasshopper field counts generally low in all areas observed. Some increase in red-legged grasshopper (Melanoplus femur-rubrum) hatch noted particularly in alfalfa fields after hay removal. Marginal damage of soybeans by hoppers, 15 per square yard, observed in southern Minnesota.

Armyworms Found In Northern Illinois

URBANA, ILL.—Tiny to almost full-grown armyworms are present in northern Illinois in lodged grains and timothy in fields, fencerows, ditch banks, waterways, and farm lots. For the next several days, inspect these places and also cornfields that have been weedy or are adjacent to infested grain fields.

Corn borer egg-laying is now complete except in extreme northern Illinois, where moth emergence is complete and egg laying should be finished very soon. Much of the corn in this area is advanced enough for the moths to deposit eggs. The few moths that are present are scattering their eggs in many fields and not concentrating them in a few. Thus damage from first-generation corn borer will generally be low in this area, and few fields will warrant treatment. In western Illinois the most effective time for treatment is now past.

Second-generation corn borer abundance will be determined by survival of the first-generation borers and the number that emerge as moths in August.

Black cutworms have not yet appeared in the northern half of Illinois. Green cloverworms are now present in soybean fields in the central part of Illinois. They are still small, and the population at this time does not warrant use of control measures.

Grasshoppers are hatching in western Illinois, but not in damaging numbers.—H. B. Petty.

Colorado's Insects in Plentiful Numbers

FT. COLLINS, COLO.—Numbers of sugar beet webworm moths are high in the Arkansas Valley, but no eggs have been found to date.

One day's collection by the light trap at Rocky Ford recently amounted to 10,324 moths, according to the Colorado Insect Detection Committee at Colorado State University. Field surveys in Bent, Otero, Crowley and Pueblo counties, however, have not turned up any eggs.

In the San Luis Valley, sugar beet webworm eggs have been found on lettuce in Alamosa County at the rate of one to ten to the plant. A large number of moths were taken by the light trap at Center in Saquache County.

In Otero, Larimer and Saquache counties adults of the potato psyllid are beginning to show in significant numbers on potatoes and tomatoes. They have not yet appeared in Rio Grande, Conejos or Alamosa counties, and in Mesa County the count is very small.

Several cutworm varieties, notably the army cutworm, are being taken in economic numbers in light traps in Weld, Boulder, Baca, Otero, Saquache and Mesa counties. The black cutworm has made an appearance in Baca County.

In eastern Colorado, tomato horn worms have been taken on tomatoes in the Arkansas Valley. Egg counts average three per 100 leaves and larvae average four per 100 leaves.

Codling Moth, Aphids Problems in New Jersey

NEW BRUNSWICK, N.J.—A few reports of fresh codling moth entry have come in. Aphids are a problem also.

In a few orchards a blossom-end-rot has been caused by Botrytis or Gray Mold. One grower estimated 5% of Lodi variety were infected. This is not the type of disease which will spread. The infection occurred at petal fall or soon after. Apparently the wet weather at petal fall resulted in gray mold of dead petals hanging on the young apple, and the fungus then moved into the fruit.

Blueberry fruit flies are very slow to emerge this summer, probably because of the very cool spring and the low night temperatures in late June. The accumulated emergence in the Pemberton and Chatsworth areas so far is less than 1/20 of what it was on this date in 1957. At Hammonton, the fly activity is moderate but not equal to 1957.

There is one noteworthy exception, the lower bank Egg Harbor area. In this region, fly population is heavy. Control activity was begun in this area about July 2 and at Hammonton about July 4. The starting date for Pemberton and Chatsworth is estimated to have been about July 6.

The retarded emergence does not mean this will be a light maggot year. The flight period will probably be more extended, making the later applications important.

Fall webworms, sharp-nosed leafhoppers and datana worm are now active in blueberry fields.

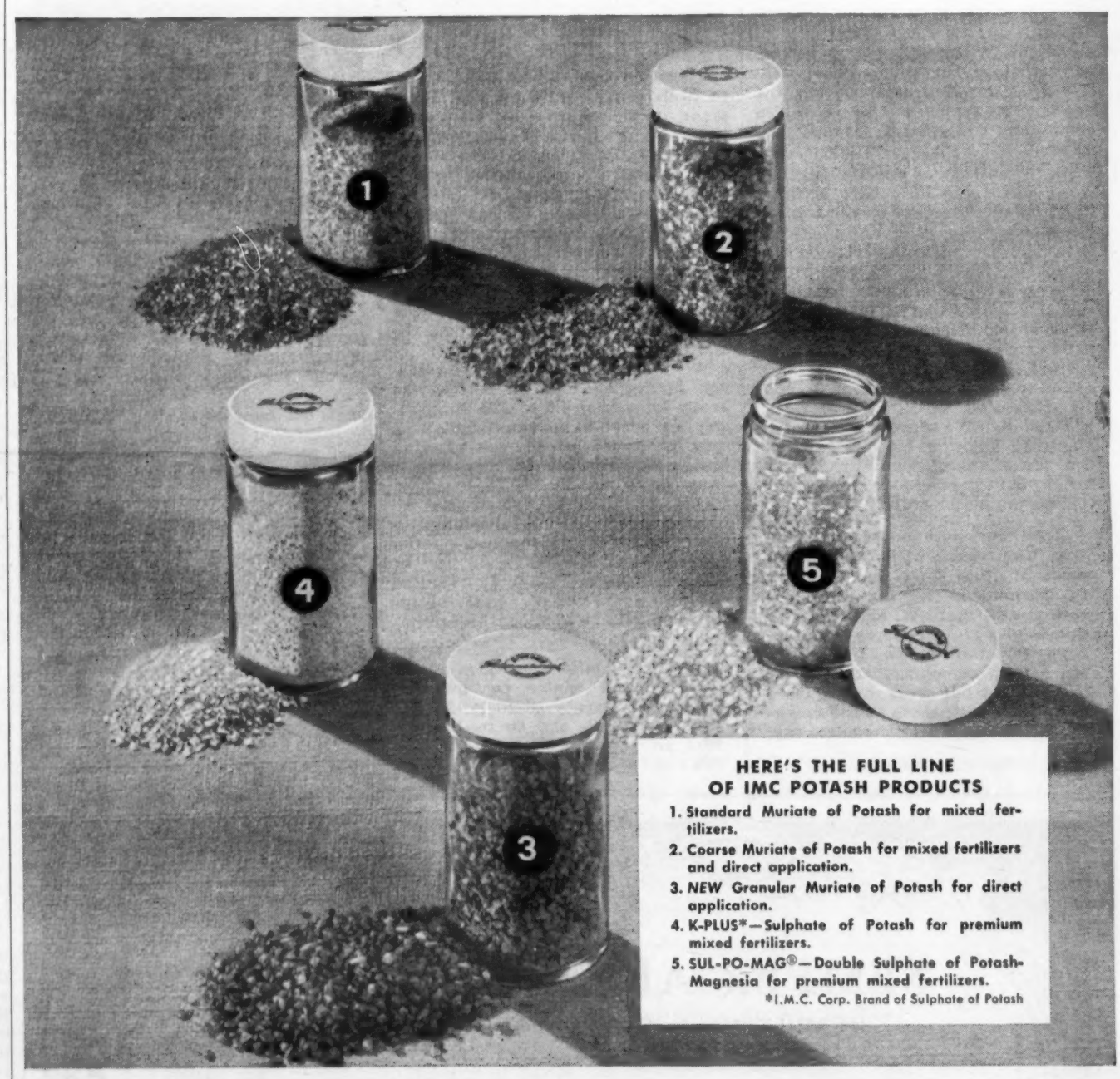
A heavy first generation infestation of Sparganothis fruitworm was prevalent on cranberries throughout the state this spring, especially in Ocean County. Control applications must be carried out before too many eggs have hatched. Since egg hatching may be extended, it may require two more sprays to control the heavy infestation observed. It is not wise to wait until you see wormy berries or until there is no more open bloom.

Blunt-nosed leafhoppers have started to appear. Since they are only numerous on bogs with open bloom, control of them will have to wait until the next Sparganothis treatment.

Thrips, Boll Weevil Reported in Georgia

ATHENS, GA.—Light to moderate infestations of thrips found on peanuts in Laurens, Ben Hill, Tift, Colquitt, Cook, Berrien, Irwin, Coffee,

(Turn to INSECT NOTES, page 8)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Fall Fertilizer Suggestions in South Reveal Potential for Sales on Pastures, Forage Crops

THE application of fertilizers in the fall of the year, though an economically sound practice in many portions of the country, also has its limitations. In many areas of the Southeast where sandy soil comprises much of the agricultural land, it is considered unwise by agronomists to apply a season's fertilizer supply in the fall of the year because of the possibility of leaching.

There are, however, some good practices that have to do with the fall and spring seasons and recommendations are made accordingly by the various state experiment stations and departments of agronomy in the Southern states.

Split Applications Found Superior in Louisiana

In Louisiana, for instance, suggestions for fertilizer use on cotton, corn, oat, rice, sugarcane, peanuts, and various kinds of meadows and pastures, recommendations have been made up by the agricultural experiment station in Baton Rouge. Much depends, of course, on the condition of moisture in the soil in various areas. Where optimum soil moisture exists during the growing season or is provided by irrigation, the amount of fertilizer that is added could be doubled or greatly increased, the agronomists say.

As to the time of application, relatively little data have been accumulated on this phase of fertilization in Louisiana, the experiment station says. However, benefits from modification of the times of application, such as more split applications, particularly of nitrogen, plus benefits from deeper placement of earlier applications are getting to be more important, the station adds.

The use of grades such as 3-12-12, 4-12-12, 4-12-8, 4-8-12, 5-10-10, 5-10-5 or their higher multiples at or before planting, followed by top and side dressing of the various nitrogen materials, is increasing as common practice on the major crops.

Louisiana agronomists indicate that they agree with the agronomists of other states in the South to recommend as few fertilizer ratios and grades, and as few grades of a given ratio as are practical for the needs. Louisiana's ten ratios, recommended according to crop and soil areas, are in close agreement with those of the neighboring states, the agronomists say.

For cotton grown on alluvial soils, the station recommends use of 60 to 100 lb. nitrogen an acre applied before or at planting or as a side dressing, from either a solid or liquid carrier. It also recommends the application of 50 or more pounds of phosphorus an acre in addition to the nitrogen. These elements, the station adds, may be supplied by the application of 400 lb. or more of 15-15-0 or 10-10-0 an acre.

On alluvial soils where potassium deficiency is prevalent, 50 to 75 lb. nitrogen an acre, 50 lb. P_2O_5 and 50 to 70 lb. of K_2O are suggested. These plant nutrients may be applied in the 8-8-8 or 4-8-12 grades, the station says. (However, if the latter is used, extra nitrogen should be applied as a side dressing.)

On coastal plains, coastal prairies and Pleistocene terraces and Loessial hills more potash should be used. In all cases, where the initial application of fertilizer at or before planting carries less than 50 lb. nitrogen an acre, extra nitrogen should be added as a side dressing.

When it comes to corn, more nitrogen is needed than in cotton. On heavy soils, from 80 to 120 lb. nitrogen an acre is recommended. This may be applied before or at planting or as a side dressing. On lighter soils, from 70 to 100 lb. N, 25 to 50 lb. P_2O_5 and 25 to 50 lb. K_2O an acre are recommended. These amounts of plant food may be supplied by the application of 300-600 lb. an acre of 8-8-8, 5-10-10, or 5-10-5. If adequate moisture is provided, additional nitrogen should be applied, the agronomists say.

Recommendations are also made for fall and winter pastures in Louisiana. Twenty to 40 lb. N, 60 to 100 lb. P_2O_5 and 60 to 100 lb. K_2O an acre are recomended for fall or winter pastures on the coastal plain soils. These nutrients may be applied by the use of 500 to 800 lb. an acre of 3-12-12, 4-12-8, or 5-10-10 grades. Additional nitrogen will make a better pasture, it is added.

While in some areas the use of pesticide mixed with fertilizers has come to be a usual practice, according to L. D. Newsom, head of entomology research at Louisiana State University, most of the pests which have been most effectively controlled by use of these combinations do not occur in Louisiana. The few that may be on hand are controlled effectively by seed treatment, so the use of mixtures is not recommended except for control of the imported fire ant in lawns and pastures. In the case of this pest, top dressing with fertilizer containing heptachlor or dieldrin at a rate to supply 2 lb. of the technical insecticide an acre, does a fine job for control of this pest, Mr. Newsom says.

Seed corn maggot, Southern corn root worm and the species of wire worm destructive to corn which occur in Louisiana are controlled very effectively by seed treatment, he said. Soil pests which attack sweet potatoes are controlled by an application of insecticide to the surface and then working the material into the top 3 inches of the soil. A broadcast application of fertilizer containing enough insecticide an acre, does a very fine job of controlling these pests but the growers do not practice broadcasting fertilizers, Mr. Newsom points out. Therefore, there is no advantage to the mixture.

"In general, except for pests occurring on crops which receive broadcast application of fertilizers each year, we see no advantage of insecticide-fertilizer combinations as long as seed treatments or band treatments over the row are effective," he concludes.

South Carolina Grain Crops Fertilized in Fall

For South Carolina, a schedule for fall planting and fertilization has been issued by the state experiment station through H. A. Woodle, leader in agronomy extension work.

For alfalfa, the date of seeding is listed as being from September 15 to October 15. Fertilization at seeding time should be applied at the rate of 1,200 lb. superphosphate an acre plus 800 lb. 4-12-12. In addition, a top dressing each year of 800 lb. of 0-10-20 should be applied.

Oats, planted for grain, should be seeded between October 1 and November 15. For grazing, the dates are September 1 to October 15.

Fertilization for grain should be 400 to 600 lb. 4-12-12 an acre and for grazing oats, 600-800 lb. 4-12-12 an acre. The fertilization schedule for oats applies in addition to barley, wheat barley, and rye.

For fescue and ladino, the seeding dates are from September 15 to November 1, and the fertilization at seeding time is recommended at 600 to 800 lb. 12-12-12 an acre. The same is true for annual grazing land and fescue.

Winter Grazing Pasture Lands Need Fertilizer

Recommendations for full fertilization in the state of Alabama have been outlined by Howard T. Rogers, head of the department of agronomy and soils, Alabama Polytechnic Institute, Auburn, Ala. He says that soil tests are suggested initially and each three years thereafter. This helps to adjust the level of plant nutrients and to balance the ratio of nutrients supplied for maximum efficient production of forage.

As to general recommendations for lime and fertilizer, he suggests 40 to 50 lb. each of N, P_2O_5, and K_2O an acre. This is for annual legume-grass mixtures for winter grazing.

For permanent grass-legume pastures, the fertilizer recommendations for this type of so-called permanent type pasture mixtures are 130 to 160 lb. P_2O_5, and 65 to 80 lb. K_2O an acre. For maintenance of these pastures, an annual application of 65 to 80 lb. P_2O_5 and 30 to 40 lb. K_2O an acre is recommended For soils known to be low in potash, a higher level of K_2O application is suggested, of course.

Lime recommendations are also given. These call for 1 ton an acre of ground agricultural limestone on sandy soils and two tons an acre for heavier textured soil. All lime application, he says, should be made well in advance of seeding. The above pasture fertilization recommendations pre-suppose a forage program relying on a vigorous growth of legumes for nitrogen except in the case of early winter grazing on grass-legume mixtures.

Plant Food for Alfalfa is Recommended in Tennessee

L. N. Skold, head of the department of agronomy at the agricultural experiment station, Knoxville, Tenn. sent us fertilizer recommendations for major field crops grown in that state as prepared for agronomy staffs of the extension service, experiment station and resident teaching. High rates of application of mixed fertilizers are recommended for both the establishment and maintenance of alfalfa crops in the state. From 800 to 1,000 lb. 3-12-12 are recommended for establishing alfalfa, and 500 to 600 lb. an acre of 0-10-20 for maintaining it. This is the recommenda-

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tion for major soil regions of Tennessee.

For permanent pasture, establishment is best obtained by application of 800 to 1,000 lb. an acre of 3-12-12 or 6-12-12, while maintenance may be continued by application of 400 to 500 lb. an acre of 6-12-12. Tobacco (burley) requires applications of from 1,200 to 1,400 lb. an acre of 5-10-15 plus 45 to 60 lb. nitrogen.

Experiments made at the Tennessee Agricultural Experiment Station dealing with nitrogen application on oats for winter forage, showed that in terms of fertilizer efficiency, more forage was obtained per unit of nitrogen when split applications were used. Sixty pounds of nitrogen an acre applied at seeding time, plus 60 lb. applied in early March, produced by far the greatest amount of forage and was considerably better than any other nitrogen treatment.

Thirty pounds nitrogen an acre applied at planting, plus 30 lb. applied in early March produced more forage than 60 lb. applied prior to planting.

Further data presented by W. L. Parks and E. J. Chapman of the state experiment station, said that the average forage production for the two-year period (1955-57) showed that 30 lb. nitrogen an acre at seeding plus 30 lb. in early March produced as much forage as 120 lb. applied at seeding. When 60 lb. nitrogen an acre was applied at seeding plus an additional 60 lb. in early March, 17% more forage was produced in 1955-56 and 32% more forage in 1956-57 than when the entire 120 lb. was applied at seeding.

This resulted in a two year average of 26% more forage produced by the split application than by the application of the entire 120 lb. nitrogen an acre at seeding.

Phosphate and Potash for Fall Use in Arkansas

Fertilizer recommendations in Arkansas are seldom made for the fall or winter application. In commenting on the situation, Leslie H. Hileman, assistant agronomist at the University of Arkansas, Fayetteville, said that research and farmer experience have shown that on fine-texture clay soils, a large part of the fertilizer could be applied in the off-season. "It would seem, however, that under the wide range of climatic conditions (temperature and rainfall) that exist here in Arkansas, considerable variation in response from year to year may be expected, with respect to nitrogen in particular. Many farmers hesitate to apply fertilizer several months ahead of planting at present due to the uncertainty of future cropping plans."

He added, however, that as farmers increase their rate of fertilizer application, "it is likely that increased interest will be shown toward off-season application of fertilizers, especially phosphate and potash." A chart covering fall and winter recommendations for major crops in Arkansas was furnished by Mr. Hileman. It indicates that small grains, rye grass, and perennial cool season pasture may be applied with NPK in the fall of the year and nitrogen may be applied additionally in either winter or spring.

Somewhat the same is true for annual pastures where small grain, grasses, legumes, and legume-grass combinations are grown.

On alfalfa, phosphate and potash are recommended in the fall of the year or in the winter.

Small Grains Offer Use For Fall Fertilization

Fertilizer recommendations for field crops in Kentucky include some areas where fall fertilization is appropriate and desirable. In small grains, where no manure has been applied, 30 lb. nitrogen, 100 lb. P_2O_5, 60 lb. K_2O are recommended. The minimum grade suggested is 4-12-8, and the rate of application 800 lb. an acre.

Where 8 to 10 tons manure had been applied on the previous corn crop, small grains should have about 700 lb. an acre of 3-12-12.

For permanent pasture, 900 lb. 0-16-8 are recommended for starting when no nitrogen is necessary. However, when nitrogen is required to establish seedlings, 1,000 lb. of 4-12-8 are recommended.

For annual top dressing to be applied when most convenient from the first of March to the end of September, the station recommends 300 lb. 0-10-20, or on a rotational basis, 300 lb. 0-20-20 one year and 100 lb. 0-0-60 the next year.

According to Harold F. Miller, extension specialist in soils at the University of Kentucky, College of Agriculture, Lexington, Ky., fall fertilization is not recommended on fields going to corn and tobacco the following spring, because of the danger of leaching loss, particularly of nitrogen, during the winter months. "Our soils are usually frozen for only a short period during the winter, and for this reason are much more subject to leaching loss than soil in the North where they stay frozen during most of the winter," he says.

Need for More Automatic Process Controls Cited

PHILADELPHIA, PA. — The concepts of systems engineering and of automatic process control through servomechanism design methods are just beginning to exert an impact upon the operations of the chemical manufacturing industries, Dr. Theodore J. Williams, St. Louis, told the American Institute of Chemical Engineers in their recent meeting here.

Dr. Williams, theory group leader of Monsanto Chemical Co.'s systems engineering and process control section in its Research and Engineering Division, presented a paper on "Organization for Chemical Process Control," which he co-authored with Dr. Joel O. Hougen. The latter is in charge of Monsanto's educational program in systems engineering.

The paper pointed out that even though the concepts referred to have been well proven by their applications to the aircraft, electronics and other defense industries for the past several years, there has been a lag in information transfer from these industries to the chemical industry. This lag, the authors said, can be attributed to a lack of personnel in chemical companies with the proper training and experience to lead studies in this field and also to a lack of availability in the chemical industry of the required equipment to carry them out, such as large scale analog and digital computers.

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INSECT NOTES

(Continued from page 5)

Bacon, Appling, Tattnall, Candler and Emanuel counties. Also the red-necked peanutworm is in light infestations in the aforementioned counties. Moderate infestations of chinch bug on corn in Forsyth County.

Light to moderate infestations of tobacco budworm on tobacco in Laurens, Dodge, Ben Hill, Tift, Colquitt, Cook, Berrien, Irwin, Coffee, Bacon, Appling, Tattnall, Candler and Emanuel counties. The same is true for false tobacco budworm on tobacco in the aforementioned counties.

Boll weevil counts were made in 42 fields in Middle and South Georgia and ranged from 1 to 45% punctured squares, averaging 19% punctured squares. First generation weevils are present in South Georgia cotton fields.

Bollworm counts were made in 42 fields in Middle and South Georgia. The egg counts ranged from 0 to 31, averaging 7 per 100 terminals. The larvae counts ranged from 0 to 11, averaging 3 per 100 terminals. All fields were infested with eggs and/or worms.

Light infestations of cotton aphid on cotton in Thomas, Johnson, Washington, Jefferson and Hancock counties. Moderate to heavy infestations in Dodge, Ben Hill, Tift, Colquitt, Cook, Berrien, Irwin, Coffee, Bacon, Appling, Tattnall, Candler and Emanuel counties.—W. C. Johnson.

California Grasshopper Infestation Still Expected

SACRAMENTO — An anticipated invasion of grasshoppers on California farm lands has not developed as soon as expected but Robert W. Harper, chief of the State Bureau of Entomology, says the major trouble may still be ahead, possibly a few weeks away.

Mr. Harper and his associates in the California Department of Agriculture had predicted the state's worst grasshopper outbreak in recent years would reach farmlands in June. However, there has been sufficient green vegetation to hold the insects in the uplands, except for scattered trouble spots.

"We haven't had enough good continuous warm weather," Mr. Harper explained. "The grasshoppers will move into the crop areas when the rangelands dry out."

One threatened outbreak in the Beale Air Force Base area of Yuba County was checked. Planes were used to combat an invasion in Shasta County where the grasshoppers numbered as high as 200 per square yard. Rangelands in Amador County were hit by as many as 125 a square yard and treatment has been required in the Sloughhouse area of Sacramento County and in the English Hills area of Solano County.

Canadian Farmers Turn Back Grasshoppers

REGINA, SASK. — Saskatchewan farmers have turned back a major outbreak of grasshoppers through spraying operations carried out on slightly more than 1½ million acres. This is the largest acreage ever treated in the province, according to R. E. McKenzie, director of the provincial plant industry branch.

Mr. McKenzie said the Department of Agriculture has supplied 65,000 gallons of chemical for grasshopper control to about 140 municipalities so far. Severest outbreaks have been in the Coronach, Ponteix, Torquay, Tribune, Radville, Kincaid, and Mankota districts. In general, infestations have conformed to the 1958 forecast map but due to prolonged dry weather they were more severe than anticipated.

Crop loss to date has been comparatively light as farmers carried out spraying operations in good time. Excellent kills are reported from all districts with dieldrin, supplied by the department. Dieldrin was also supplied to a number of municipalities for cutworm control.

Spraying for grasshoppers is still going on but activity is diminishing. It is expected that operations will continue on a limited scale up to harvest time.

Mr. McKenzie said it is too early to predict grasshopper outbreaks in 1959, but experience has shown that grasshoppers and drouth usually go together. If dry weather continues through the fall egg-laying period it is possible that more severe outbreaks over a much wider area will occur in 1959.

Boll Weevil Situation "Looks Good" to Reporter

RALEIGH, N.C.—The boll weevil situation looks very good, but there are a few fields in a number of counties where the infestation is near 10% or slightly above. A few bollworms were reported from Montgomery and Scotland counties, but the infestation rate was light. No mites were reported this week (July 3).

Boll weevil grubs in infested squares collected on June 16 are now pupating and would be emerging by July 3 to 5. This means that we may have the 1st generation (1st brood) weevils in the lower southeast counties out now, hence the need for regular treatments if the infestation rate shows an upward trend.

While the data shows a low square population in the fields there are a few weevils in almost all fields and most likely all will need treatments in the next day or so. The Anson County agent reported 3 treated out of 14 examined and all from 3 to 9% infested. Warren and Chowan counties reported 0 infestation in all fields examined. All of the fields had serious weevil populations last year.

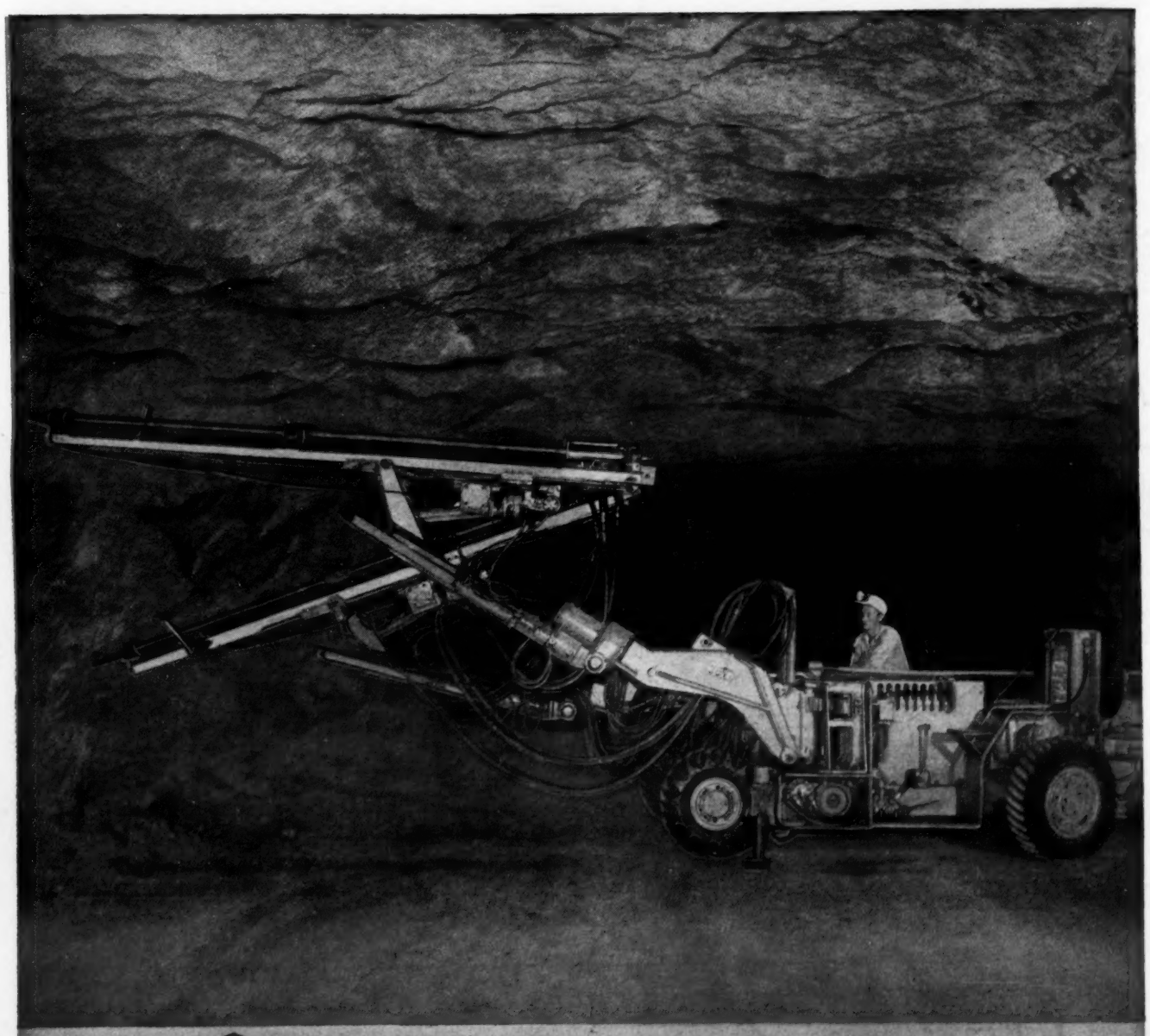
No general build-up of bollworms seems to be underway. Corn will soon have tassels and silks in many areas, hence the infestation in cotton could decline, but the situation is one of concern with so much late cotton. All are urged to check their fields regularly.

Nothing indicates a mite build-up in any area, but another localized infestation has been found in Union County.—Geo. D. Jones.

Heavy Corn Borer Population in Nebraska

LINCOLN, NEB.—The first brood corn borer infestation in Nebraska this year promises to be the largest since the destructive pest invaded

(Turn to INSECT NOTES, page 17)



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Special Merchandising Section

Better Selling

Marketing News and Features

WELCOME—The Aylward Fertilizer Co., Sullivan, Ill., has a number of "Welcome to Sullivan" highway road signs which also tell passers-by that this is the home of the Aylco plant which makes liquid fertilizer.

Arkansas Demonstration Proves Value Of Soil Tests; Numbers Show Increase

WARREN, ARK. — Cotton yields obtained last year on a result demonstration, conducted by John Harrod, Spring Hill community in Bradley County, proved it "pays" to fertilize according to soil test recommendations.

R. E. Hunter, county agent, and the cooperating farmer divided a field into three plots. Plot number one was fertilized according to the farmer's normal application, which included 300 lb. of nitrogen per acre.

A soil analysis showed that the field had a pH of 7.0%, "very low" in nitrogen and organic matter, but a "high" per cent of available phosphorus and potash nutrients. Fertilizer was applied to plot number two as recommended by the University of Arkansas Soil Testing Laboratory to include 30 lb. of nitrogen per acre under the crop at planting time and an additional application of 40 lb. as a side dress four weeks later.

On plot number three, the application of fertilizer was doubled as recommended by the soil test.

Fertilizer for the demonstration was contributed by the Warren Cotton Oil Mill without cost, in the interest of greater efficiency in decreasing production cost.

A 10-ft. alley-way divided each plot and the field was poisoned six times for cotton insect control.

Compiled records following picking showed close comparison in yields but a margin in fertilizer cost.

Plot number one produced similar yields to the plot fertilized according to soil test, but a $4.50 per acre increase in fertilizer cost. Plot number three had an 11-lb. lint increase, but a $3.60 increased fertilizer cost over the plot fertilized according to soil test.

As a result of the fertilizer demonstration, Mr. Harrod is following soil test recommendations on all his field and horticultural crops this year.

Mr. Hunter said that 478 soil samples had been taken by Bradley County farmers on 291 farms this spring and analyzed at the laboratory, which is a slight increase over 1957. The county extension agent reported that interest in this phase of work has continued to increase each year and that approximately 75% follow the recommendations in full.

Drouth Insurance—By the Bag

By Carroll H. Ramage
Assistant Professor of Dairy Science
Rutgers University

The summer of 1957 was about as dry as any summer in recent memory of New Jersey farmers. Hay crops were hard hit and even deep rooted alfalfa in many areas failed to come back after the first cutting.

But scientists at the Dairy Research Farm at Sussex in northern New Jersey, applying nitrogen fertilizer to 5-year-old stands of pure grasses (orchardgrass and reed canarygrass) obtained three cuttings of top quality forage with a total yield of 3½ tons of hay per acre.

These workers do not claim that nitrogen allows grass to grow without water. The nitrogen enables the crop to make much more efficient use of the water that is available for growth. Five years' results from fertilizing grasses indicate that dry, normal, or wet season, it is nitrogen that is the limiting factor in the growth of grasses.

It is true that more growth occurs during seasons of favorable rainfall, but this extra growth may well be due to the fact that more soil nitrogen is made available to the plants by the soil microorganisms breaking down the organic matter under the favorable conditions created in the soil by frequent rainfall.

Even the poor growth of alfalfa in a drouth year may indirectly be due to a nitrogen shortage.

Obviously the deep roots of alfalfa have more water available than do the relatively shallow roots of grasses. But the nodules containing the nitrogen-forming bacteria are found

(Turn to DROUTH INSURANCE, page 16)

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

The small store often has one advantage over a larger business, and this is in the friendly contacts with customers and amount of personal service given. At the Stokes Feed & Seed Co., San Angelo, Texas, manager Noel Conaway stresses friendly service.

"We've had some slow business during the long drouth," he says, "when livestock numbers were down and farmers didn't get enough rain to fully utilize fertilizer. I sometimes think that it was only the loyalty of our customers that pulled us through."

Last summer the drouth-breaking rains came, and now business is good again. Mr. Conaway learned a few lessons from the dry years, however. He saw the need for more diversification, so the merchandise was increased to cover numerous fields. These included fertilizer, insecticides, animal and poultry sanitation products, seed, garden supplies and other items for the farm and ranch home.

Since a large diversified farming area is located just east of San Angelo, the store strives to increase this business. Mr. Conaway has a seed cleaner and furnishes much of the planting seed needed. Along with it are sold seed chemicals, insecticides and fertilizers. Then in the fall a large amount of the grain is bought from the farmers, and the cycle is completed.

In dealing with farmers and ranchers, he has several rules which he and his three employees follow. First, they give each person who enters the store a friendly welcome. It may be just a nod or wave of the hand if the employee is busy with another customer, but at least the newcomer is recognized. They also take time to answer any question and they explain every product sold and how to use it, providing the customer is not already familiar with it.

"We also try to listen," said Mr. Conaway. "For instance, a lady bought some black-eyed peas for planting, and I told her when to plant them. Then right quickly she informed me I had my dates wrong, that they would do better by waiting two weeks. I checked with several people who said the lady was right. So it often pays to pump your customers for information, so it can be passed along to the next person."

Mr. Conaway tries to keep a clean store. Merchandise is attractively arranged and in such a way that customers can serve themselves.

Before becoming manager of the Stokes Feed & Seed Co., Mr. Conaway had spent many years in agricultural work and became especially familiar with farmers and ranchers and their problems.

When he took over the managerial reins of the store, he put this acquaintanceship to good use. Not only did many of them become good customers, but they also can advise him on credit problems. For instance, if a man wants to buy a ton or two of fertilizer on credit, Mr. Conaway may call up someone who has dealt with the man financially. Finally, Mr. Conaway will check with the banker or retail merchants association.

"You can't stress courtesy and friendliness too much in this business," he pointed out, "but at the same time a store manager can lose money by being easy. Here we try to help customers but only when they try to help themselves. By watching those doubtful accounts and staying after them, we've held credit losses to a very small per cent."

Both Mr. Conaway and his associate, Bill Whitehurst, help out on farming problems. They have made a study of fertilizers and insecticides. They have also kept up with yields made by the use of fertilizer, and work closely with the company experts, the county agricultural agent and the Soil Conservation Service.

Because of working with the SCS, Mr. Conaway managed to become agent for several different kinds of grass seed. Ranchers are interested in reseeding much of the barren rangeland, and this outlet for seed is proving quite profitable to the firm.

Town trade is also quite profitable. Small packaged fertilizer and insecticides are good sellers. Also garden supplies, pet supplies, dog food, small hardware, pesticides and other items are helping increase the profits. Most of this merchandise is cash business, and the profit margin is greater than on bulk products.

N.C. Dealers Turn Out In Sizeable Numbers

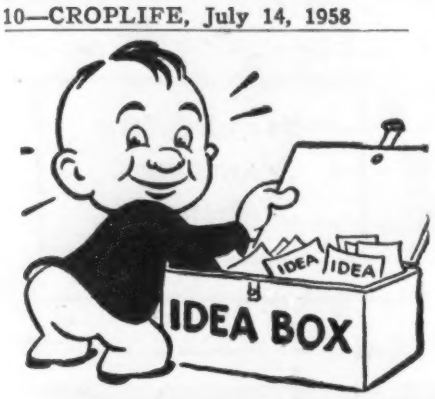
Keeping fertilizer and lime dealers informed of the latest findings in soil research is one important way to promote better use of fertilizer and lime. With this objective in mind, meetings were held in 26 North Carolina counties during the late winter and early spring of 1958.

This series of county meetings resulted in about 500 fertilizer and lime dealers, along with a number of leading farmers and agricultural workers, getting the latest information from North Carolina State College on fertilizer recommendations for spring crops. These meetings held at the county level were a follow-up to regional meetings held last fall where fertilization of small grain and pastures was promoted.

The good attendance by salesmen and dealers is considered a result of joint efforts of the North Carolina Agricultural Extension Service and the various companies. The companies were given the schedule of the county meetings in order that they could encourage their representatives to attend. At the same time county agents were giving local publicity to the meetings.

PLANE DISTRIBUTOR

FRESNO, CAL.—Austin Aviation Supply Co. is the newly appointed distributor for the Clark "Model 1000" agricultural biplane in California and Arizona. The ship has been on display at Chandler Field here.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 7077—Fly Spray

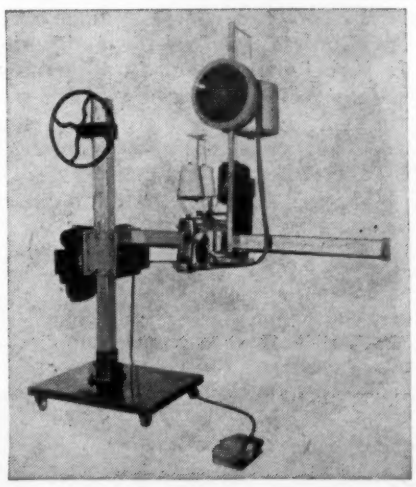
Pratt Laboratories, Inc., has announced the introduction of a new fly spray called "Fly Bomb." The product, which is now available to dealers, contains a repelling agent called "Tabutrex." The product can be used safely around the home, it is claimed, and it comes in 12-oz. aerosol container. Check No. 7077 on the coupon and mail it to secure details. Please print or type name and address.

No. 7075—Research Chemicals

A 42-page booklet entitled, "Lookin' for Somethin'?" contains a list of research chemicals from the Dow Chemical Co. A wide variety of materials — currently available in limited quantities—are listed. Check No. 7075 on the coupon and mail it to secure the booklet.

No. 7068—Sewing Machine Head

A portable traveling head unit for closing bags while they are on the platform scale has been introduced by the Minneapolis Sewing Machine Co. It is claimed that one operator can fill, weigh and sew without moving the bag or changing his position.



Forty inches of horizontal travel is provided. Over-all length of the standard unit is 6 ft., 6 in., the height is 6 ft. and the extended height with tape attachment is 7 ft. Check No. 7068 on the coupon and mail it to secure details.

No. 6769—Pellet Booklet

Chemical Engineering Service, Division of Manitowoc Shipbuilding, Inc., has published a booklet on pelletizing. This booklet is full of useful information for the guidance of those desiring to pelletize, as well as full diagrams of the various types of installations possible. It explains the important factors to study before proceeding to purchase. The booklet is written and illustrated in simple terms and contains 21 pages of useful information. Check No. 6769 on the coupon and mail it to secure the booklet.

No. 6770—Catalog

The RegO Division of the Bastian-Blessing Co. has announced the publication of its new A-100 catalog, covering the line of "RegO" anhydrous ammonia control equipment. Detailed descriptions of multi-purpose valves, globe and angle valves, check valves, relief valves, etc. are presented in the 28-page catalog. Full ordering information is included with each item. Check No. 6770 on the coupon and mail it to secure the catalog.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 7057—Dolly Bag Closer

An adjustable, portable, manually-operated dolly bag closer for closing small size bags has been announced by the Minneapolis Sewing Machine Co. The model—JD-4—closes paper, cotton or burlap bags of any size up to 25 lb. Check No. 7057 on the coupon and mail it to secure details. Please print or type name and address.

No. 6762—Centrifugal Pump

The Deming Co. has begun marketing a new "light-weight," self-priming portable centrifugal pump powered by a Briggs & Stratton engine. The pump is said to meet the requirements of handling liquid fertilizer. Called the "Fig.3,307," the pump has a stainless steel alloy pump shaft coupled to the engine shaft by a compression coupling which "assures perfect alignment." None of the liquid being pumped touches the engine shaft, it is claimed. Check No. 6762 on the coupon and mail it to secure details.

No. 6756—'Amino Triazole' Weed Killer

A folder entitled, "For Clean Corn Land—Amino Triazole Weed Killer," has been prepared by the American Cyanamid Co. The product, explains the folder, kills Canada thistle, sow thistle, poison ivy, poison oak, honeysuckle, milkweed, leafy spurge and other weeds. Check No. 6756 on the coupon and mail it to secure details.

No. 6761—Concentrates

The Diamond Alkali Co. announces the availability of low volatile 6-lb. Ethyl Hexyl Esters of 2,4-D and 2,4,5-T to custom applicators of herbicides. These high acid equivalent concentrates are said to make possible substantial cost economies and provide a number of other important advantages in weed and brush killing operations. The concentrates may be mixed with water for an emulsion, with straight oil for an oil spray, or with a combination of oil and water. To secure further details please check No. 6761 on the coupon and mail it to Croplife.

No. 6760—"Sevin" Folder

A folder explaining how to use "Crag Sevin," a new insecticide for apples and pears, is available from Union Carbide Chemicals Co., Division of Union Carbide Corp. "Sevin" may now be purchased in limited quantities by experienced apple and pear growers for field testing. Secure the folder by checking No. 6760 on the coupon and mailing it to Croplife.

No. 6763—Granular Fertilizer Chain Mill

Literature describing the granular fertilizer chain mill manufactured by the Fertilizer Engineering & Equipment Co., Inc., is available. The mill is said to be a unit that cracks instead of pulverizes. Officials say that the "normally over 75% of throughput will be in the selected range of sizing." The mill is of the non-clogging design. Check No. 6763 on the coupon and mail it to secure details.

No. 6757—Truck Applicator

The Broyhill Co. has announced details of its truck applicator for complete analysis fertilizer solutions. Company officials state that the unit has been field tested during the past two years. The unit, claims the company, can: Transport one to three types of solution in the 3-compartment, 1,000 gallon steel tank; be easily and quickly removed from the truck; apply up to 200 acres a day; spray a uniform 30-ft. swath; transfer solution from truck tank to other field applicators; and transfer solution from storage tank to truck tank at the rate of 100 GPM. Secure details by checking No. 6757 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 7063—Vibrator

A new type vibrator to break bridging of materials in storage bins, supply ducts and containers has been developed by the Thayer Scale Corp. Vibration is not applied directly to the side walls of the hopper or duct, but rather to screens which are inserted within the chamber. Various sizes and shapes of vibrators are available. Check No. 7063 on the coupon and mail it to secure details.

No. 6768—Lining Materials

Wisconsin Protective Coating Co. has issued literature about its cold-set tank lining materials, which include coatings developed specifically for the fertilizer industry for service in nitrogen solutions, phosphoric acid, ammonium nitrate and other products. To obtain more details check No. 6768 and mail the coupon.

No. 6764—Soil Conditioning Agent

A new type soil conditioning agent has been developed by the Commonwealth Engineering Co. The agent is designed for use by manufacturers of commercial soil additives and is said to adjust to the individual needs of

Send me information on the items marked:

- ☐ No. 6756—Weed Killer
- ☐ No. 6757—Applicator
- ☐ No. 6760—Folder
- ☐ No. 6761—Concentrate
- ☐ No. 6762—Pump
- ☐ No. 6763—Granular Mill
- ☐ No. 6764—Conditioning Agent
- ☐ No. 6765—Tank
- ☐ No. 6766—Movie
- ☐ No. 6767—Publication
- ☐ No. 6768—Lining Material
- ☐ No. 6769—Pellet Booklet
- ☐ No. 6770—Catalog
- ☐ No. 7057—Bag Closer
- ☐ No. 7063—Vibrator
- ☐ No. 7068—Sewing Head
- ☐ No. 7075—Research Chemicals
- ☐ No. 7077—Fly Spray

(PLEASE PRINT OR TYPE)

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS PERMIT No. 2 (Sec. 34.9, P. L. & R.) MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept. Minneapolis 1, Minn.

specific soils. Secure details by checking No. 6764 on the coupon and mailing it to Croplife.

No. 6766—Movie About Gypsum

A sound slide film, "The Uses of Gypsum in Agriculture," is available from the United States Gypsum Co. for loan to county agents, vo-ag teachers and farm groups. The film describes the eight major uses for the firm's agricultural gypsum, which, according to the company, improves drainage of wet soils, clears muddy waters, breaks up plowpans and compacted soils, corrects irrigation waters, supplies neutral soluble calcium, conserves nitrogen in manure, supplies sulfate sulphur and stimulates soil micro-organisms. For more information check No. 6766 and return the card.

No. 6767—Publication

Monsanto Chemical Co.'s line of agricultural chemicals, including fertilizer materials, feed supplements, herbicides and insecticides, is described in detail in a special agricultural chemicals issue of Monsanto International, a 36-page publication for overseas distribution. Published in French, Spanish and English editions, the special issue details the properties of each of Monsanto's agricultural chemicals and describes how they are used in formulations. A guide to each product's use and the type of equipment necessary for application are provided for the grower. To receive a copy check No. 6767 and mail the coupon.

No. 6765—Irrigation Drip Tank

Fabricated Metals, Inc., has published new literature describing its No. 4301, 500-gal. irrigation drip tank for gravity and pressure applications. The tank is supported on legs that are both removable and adjustable for height. A 1-in. metering valve is provided for accurate adjustment of flow, the literature states. Check No. 6765 on the coupon and mail it to secure the literature.

Beet Leafhoppers Hit Utah Garden Crops

LOGAN, UTAH—Beet leafhoppers are at their highest numbers since 1926 in Utah.

But it's the garden crops rather than sugar beets which are feeling the brunt of curly-top disease, spread by the insect, reports Dr. G. F. Knowlton, entomologist at Utah State University.

The scientist says most strains of sugar beets now are resistant to curly-top. However, most tomatoes, cucumbers, cantaloupes, beans and table beets are still susceptible.

DEALER SHORT COURSE

GAINESVILLE, FLA.—The annual short course for Florida seedsmen and garden supply dealers will be held on the University of Florida campus July 9-11, according to Mason Marvel, assistant vegetable crop specialist with the Florida Agricultural Extension Service. This will be the first year garden supply dealers have been included and the first time that program material on ornamentals and turf will be presented.

Handling Customer Complaints — Profitably

By ERNEST W. FAIR
Croplife Special Writer

"Satisfaction guaranteed—or your money back," is one of the basically sound policies of farm supply merchandising. Every experienced dealer knows, if his business is to be truly successful, that he must follow such a policy.

Yet in so doing he must protect the best interests of his own enterprise. As every reader knows there are many score experiences of his own wherein refund of the purchase price on an item was anything but the best way to handle a customer complaint on a mutually satisfactory basis.

"Satisfaction" does not always entail a cash refund. In most cases the dealer cannot do so if he wishes to stay in business. Every such customer complaint must be handled satisfactorily—and also profitably.

How to do this? There can, of course, be no policy which may be universally applied. Every situation requires different treatment and different handling. The dealer must use each and every case as an individual problem.

The story is told about Richard Sears, one of the founders of Sears-Roebuck. A customer came into Mr. Sears' jewelry store and purchased a watch. Upon leaving the store he pulled the watch out of his pocket to admire it, fumbled and dropped it into a mud puddle. Chagrined, he took the watch back into the store and asked Mr. Sears to have it cleaned as soon as possible. Reaching into the display, Mr. Sears pulled out a shiny new watch and handed it to the customer with the statement, "Sir, our watches are guaranteed not to fall into mud puddles!"

This was indeed a generous step to take and one which can be applied with a very good customer under unusual circumstances such as the above. The dealer can be assured of the future business of such a customer so handled.

However, such procedure would be applicable only in rare and unusual cases. Many other plans are more acceptable.

One of these is to follow a policy widely used today by many successful farm chemical dealers. One such man expresses it in these words: "We always hear out the customer's complaint in full detail and with great sympathy and, I might add, considerable patience. When the customer has finished we ask if he or she would mind listening a moment or two to our side of the problem and we present it as simply and directly as possible. Then we ask—'What will it take to satisfy you?' "

The use of this policy has resulted in much less costly handling of customer complaints than under the old "satisfaction guaranteed—or your money back" principle.

Most customers are reasonable people. They simply never stop to think of the dealer's side of the problem. When honestly and carefully explained to them they are much more understanding. The percentage of those who even then fail to supply such cooperation has turned out to be remarkably small.

Adjustment is another step which can be used effectively and which the average customer will accept with good grace and without any loss of future business. Some firms make such adjustment on a partial cash refund basis, some do it through granting of trade-in allowances of varying degrees on other merchandise and many ask the customer to set an outright figure on the adjustment they believe to be fair.

The most profitable procedure in such cases (as with most in handling customer complaints) is always to make a settlement satisfactory to the customer without actual cash refund even if it requires complete replacement of the merchandise. Even where this may involve complete replacement the cost is less than where complete cash refund is made.

Mishandling of guarantees on merchandise is the source of many problems in connection with customer complaints. Over-ambition on the part of salesmen to make the sale can lead to stated or implied guarantees which are in themselves invalid. Avoidance of such problems starts at the time of making the sale.

"When we find a salesman so eager to make every sale that he will promise a customer anything we do something about it then and there," one dealer said recently, "because we know his efforts are sure to result in a long stream of customer complaints that are going to be costly to handle."

Some firms have found the easiest way to solve this problem is to force the salesman who made the sale to handle the problem of the complaining customer. This induces a great deal more caution in future sales, to say the least.

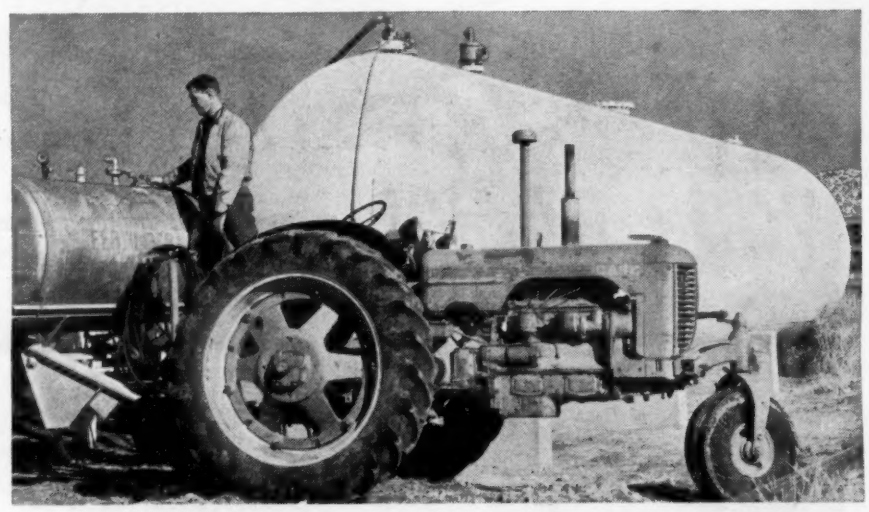
Making greater use of printed guarantees of manufacturers can also be an effective method of handling customer complaints (and avoiding them). This starts with the use of the actual guarantee as a sales tool. Doing so not only helps to make the sale but establishes an area of understanding with the customer upon which complaint adjustments can later be made at much less cost to the dealer.

Even where the customer expects something not guaranteed therein (and is demanding it of the dealer later) this same guarantee can be used to decrease the amount of adjustment required. When the customer presents his complaint this guarantee is brought out and gone over point by point and then the customer is asked: "Now, where did it fall down on this guarantee?"

The dealer can, in the majority of cases, thus secure a much more reasonable customer. In this procedure, as in all others of course, the dealer must not only seek to settle the complaint satisfactorily (and with the minimum possible loss to the firm) but retain the customer's future business as well.

Where such complaints come in

(Turn to COMPLAINTS, page 16)



Prevent Tank Corrosion with Gates "50-H" Rubber Lining

Gates "50-H" Rubber Lined Tanks will store — with complete safety—all high and low pressure nitrogen solutions, balanced fertilizers and phosphoric acids (including super phosphoric acid).

Thus, these versatile tanks will give you corrosion protection from any fertilizer chemical you may want to store in the forseeable future.

Low Cost... Fast Delivery

The Gates plant in Sioux City, Iowa, is staffed by specialists who make rubber lined tanks *exclusively*. For this reason processing can be done with unusual speed... and at surprisingly low cost.

And, because the plant is centrally located in the agricultural area, shipping costs — in most cases — are considerably lower.

For complete information, write direct to:

THE GATES RUBBER COMPANY SALES DIVISION, INC.
DENVER 17, COLORADO

Gates The Mark of Specialized Research

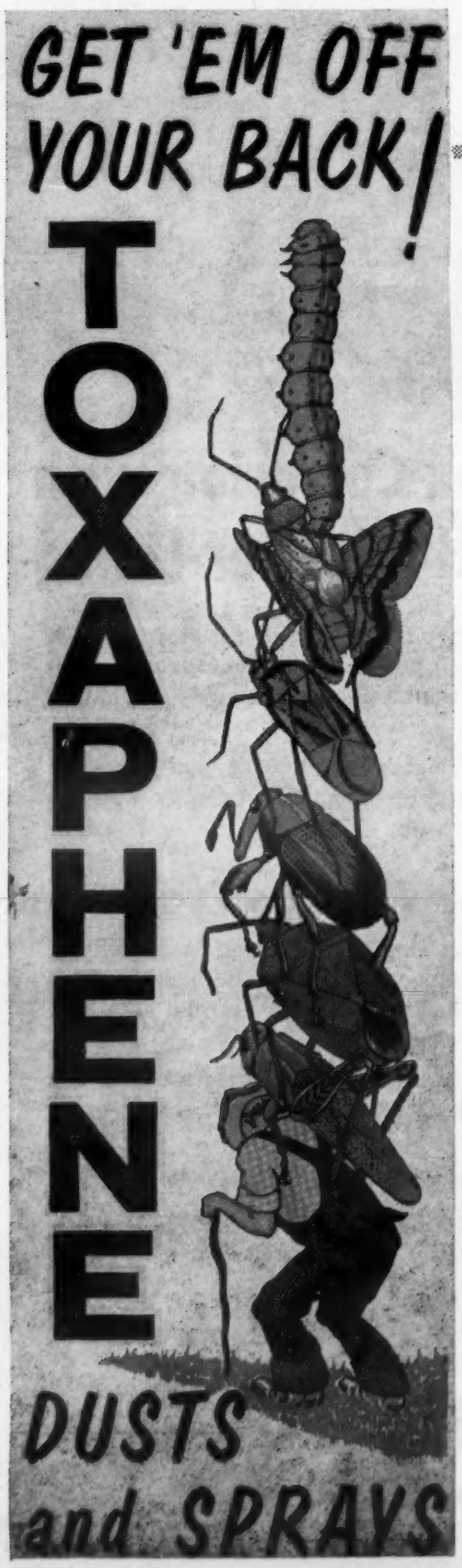
GATES RUBBER LINED TANKS

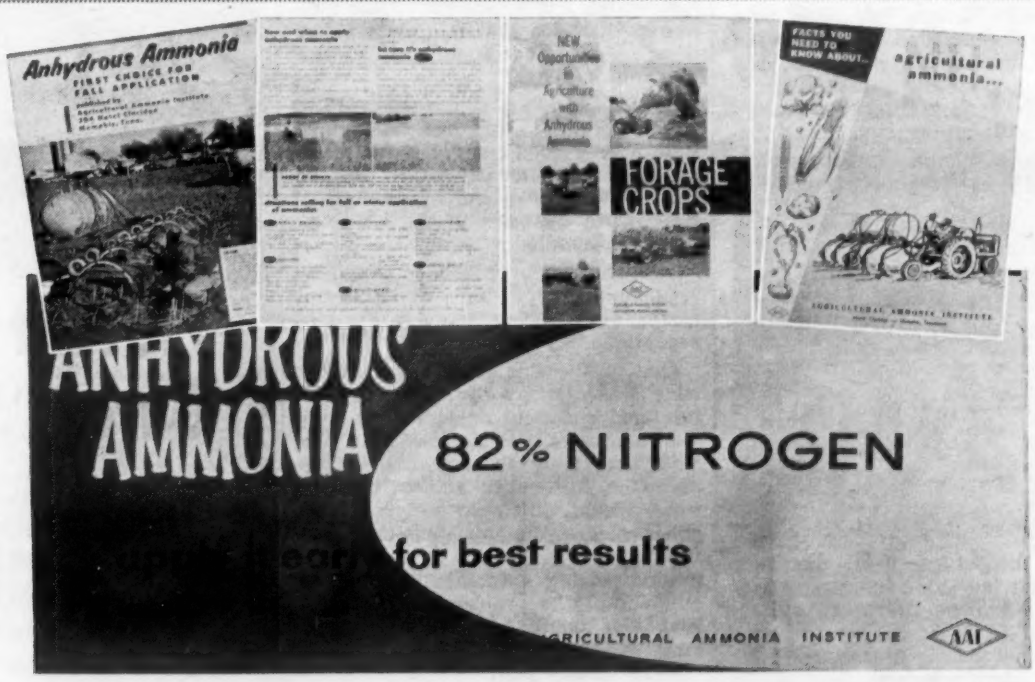
store all liquid fertilizers safely

TPA 332

MERCHANDISING

Armour Fertilizer Co., Chicago, has available for its distributors and dealers store banners and newspaper advertising mats, some of which are illustrated at the left. The large poster, forming the background of display, measures 20 x 30″, and is printed in green, red, and black for outstanding attention-getting. Across the bottom is a window-poster, 5½ x 22″, in bright red and green colors, and at the right are two of a number of newspaper mats available for the use of dealers. The mats shown here are 2 cols. wide.





Advertising for anhydrous ammonia in the form of posters, booklets, mailing pieces and other forms is offered its members by the Agricultural Ammonia Institute, Memphis, Tenn. Pictured above are some of these materials. Across the bottom is a king-sized poster measuring 23½ x 34½″ for use in store displays or in other places where it might be observed by potential customers. Above are a number of explanatory booklets and pamphlets issued by the institute to describe NH_3 what it is and what it does. Multiple colors are used in many of the materials, the large poster, for instance, being attractively printed in green and red with black letters.

Hercules Powder Co., Wilmington, Del., offers its outlets an attractive transparent window display to advertise its insecticidal product, Toxaphene. The banner is 24½″ in length and 6⅞″ wide. The word "Toxaphene" is in bright red letters, and the words at top and bottom are in black. The farmer, as well as all the insects on his back, are printed in various combinations of yellow, green, red, and black. Adhesive material at top and bottom of display makes it easy to stick on window.

MATERIALS AVAILABLE TO HELP YOU SELL SELL SELL!

Many fertilizers, some insecticides, and other chemical products for the farm can be sold in the off-season if an effort is made to do so.

The makers of these materials offer numerous aids to their retail outlets, and here are a few samples of how sales might be stepped up all the year through.

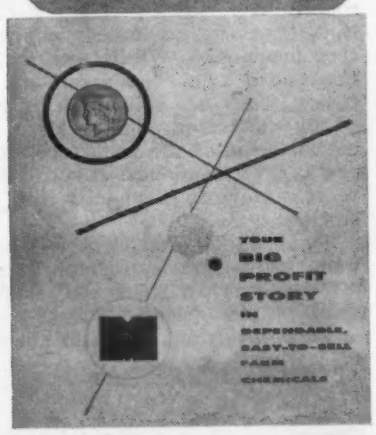
This issue of Croplife presents the first of a four-week-long series of special emphasis articles and features covering the general topic of merchandising off-season sales of fertilizers and pesticides.

If you see needed sales materials listed here by suppliers of products you handle, write your supplier for materials you can use advantageously.

AIDS AVAILABLE TO HELP YOU SELL

A considerable collection of punchy sales helps is offered its outlets by Southern Nitrogen Co., Savannah, Ga. These helps, some of which are pictured at the right, include store posters of catchy art, printed in color, for effective selling. The "Make More Money" poster measures 8" x 21½" and is in color. The "Pop" ad presents information on selling techniques, and the large "4 Steps" poster measures 18½" x 16½". The "Wanted" poster, though written in a lighter vein, carries a good sales message. Colors, red and white, size: 18" x 8".

HERE'S YOUR ADVERTISING MATERIAL
to help you MAKE MORE MONEY with MONSANTO FARM CHEMICALS
Low Cost Newspaper Ads
Brand New! ...now SOLD
NOW! MONSANTO'S
SIMPLE!
DEALER'S NAME
Cultivation Can't Reach WEEDS
BUY THE New MONSANTO WEED AND BRUSH KILLERS CAN!
DEALER'S NAME says: We've got the Nationally Advertised
MONSANTO WEED AND BRUSH KILLERS IN STOCK NOW
Get Yours Now!
DEALER'S NAME



A wealth of material explaining the firm's weed killers and other chemical products is offered its distributors and dealers by Monsanto Chemical Co., St. Louis, Mo. Above is the cover of a booklet containing a large selection of newspaper advertising mats, some of which are shown.

Most of the mats are of single-column width, but the one at the right is 3 cols. wide. At the right are covers of well-illustrated and well-documented works on weed killers written for dealers who sell the products. The top cover, representing a playing card, opens out into an accordion-fold information piece. Below are covers of a group of mailing folders, most of which measure 8¼x3⅓", printed in many colors, describing various chemical products. These are written for the consumer.

SPRAY AWAY WEEDS in corn or sorghum with MONSANTO 2,4-D
EXTRA SAFE WEED CONTROL
spray away weed
plan your weed control program early
spray away your insect problems with versatile and effective
MONSANTO PARATHION
now! you can have richer grasslands and pastures
when you spray away weeds and brush with these Monsanto herbicides...
2,4-D
2,4,5-T
2,4-D 2,4,5-T
SPRAY AWAY BRUSH
WITH MONSANTO 2,4-D 2,4,5-T AND 2,4,5-T
NOW...
YOU CAN CUT HAND WEEDING LABOR COSTS 20 TO 90 DOLLARS PER ACRE!
spray Vegadex when you plant...
REDUCE WEEDING COSTS, GET BIGGER ONION YIELDS...
Randox
SPRAY IT WHEN YOU PLANT... SPRAY IT WHEN YOU SET YOUR TRANSPLANTS

FARM SERVICE DATA

Extension Station Reports

Efficient use of lime is an important consideration when planning crops to be seeded in the fall, say University of Tennessee extension officials. Much fall seeding is alfalfa and permanent pasture in Tennessee. The proper use of lime is very important in the establishment of these crops, Joseph N. Matthews, assistant extension agronomist, reports.

It takes approximately two to four months for lime to correct the acid condition of the soil; therefore, it should be applied at least that far in advance of seeding. This will enable the newly seeded crops to obtain early benefit from liming, Mr. Matthews says.

Lime applied to plowed land and mixed thoroughly with the soil is preferred, Mr. Matthews explains. This allows for maximum contact with the soil particles and a quicker correction of the acid condition of the soil.

The amount of lime needed per acre varies widely, depending on the past history of the land and the crop to be grown. The best way to determine the amount of lime to apply is through the use of a soil test.

★

There's virtually a "zoo" of weeds growing in Arizona.

Some of the weeds carry such names as giraffe head, tiger grass, lions tooth, camel thorn, buffalo bur, coltstail, owlsclaws, bullhead, storksbill, turkey track, white goosefoot, sheepsour, squirreltail, farmer's foxtail, fingerleaf coyote melon and skunk grass.

These are but a few of the many odd names used by Arizonians to describe a variety of weeds that plague Arizona ranches, farms and gardens.

Arizona farmers and ranchers are becoming more concerned with the economic losses from weeds, the Arizona extension service reports.

Weeds decrease farm income by robbing the soil of precious moisture that otherwise would be available for crop production. Weeds also increase the cost of labor, equipment and irrigation. They use soil nutrients needed by cultivated plants. Many also harbor some of the worst crop insect pests. On rangelands, they seriously decrease grazing capacity for livestock.

Some range weeds are troublesome to domestic livestock because of their thorns, barbs, stiff hairs or sharp-pointed seeds.

Some weeds are useful in places as plants, but become unwanted weeds if growing where not wanted. For example, Bermuda grass is excellent as summer lawn but a harmful weed in a flower bed or on farm land or ditch banks. Even in lawns, Bermuda grass may be a weed and undesirable to persons afflicted with hay fever.

Horehound, whose tops are used medicinally for cough medicines and for candy flavoring, is listed as a weed.

Even mesquite, which is abundant in parts of Arizona, is named a weed.

★

A fertilizer study on oat forage production was conducted on the Blackland Experiment Station at Temple on Houston black clay soil during 1953-56. Lack of moisture during the growing season limited forage yields each year.

In most cases, nitrogen application significantly increased forage yields in all four years.

Phosphorus alone significantly increased yields in 1954 but not in the other three years. Forage yields were significantly increased by a combination of nitrogen and phosphorus for almost every treatment and in every year. The addition of 60 lb. per acre of potash to 60 lb. each of nitrogen and phosphoric acid did not further increase forage yields.

These tests indicate that the most profitable treatment for the production of oat forage in this area is a combination of 30 lb. each of nitrogen and phosphoric acid per acre.

★

The recent increase in grain sorghum acreage has caused much concern about insect losses to this crop, according to Mississippi Agricultural experiment station officials. Since the grain of sorghum is exposed, field applied residual insecticides may adhere to the grain in excessive quantities.

It was found that more than half the effectiveness of DDT was lost in one week. It is hoped that such information will be helpful in establishing insecticide recommendations for the crop. It was also found that very exact timing of insecticide application is needed. This in turn emphasizes the need for greater crop uniformity for a successful insecticide program.

Fumigation of oats in 1957 was done in wooden bins lined with builders' felt. Good stored grain insect control was obtained using recommended dosages of standard fumigants such as 3 to 1 mixture or 10% acrylonitrile.

Small bin tests using insecticide dusts indicate that stored grain insect control may be obtained using insecticide dusts. The materials included in the study were pyrenone, ryania, malathion, phosdrin, and chlorthion. The length of effective period of these materials has not been determined as the tests have not been completed.

Thrip control recommendations reduced thrip infestations on the treated plots. Plants were 75% normal on treated plots and 36% normal on untreated plots. Most treatments had significant increases in yield of seed cotton over the check plots.

★

Arkansas farmers can ordinarily irrigate with a sprinkler system and spread water-soluble fertilizer in one operation.

That is the way Billy Bryan, associate agricultural engineer, sums up six tests at the Arkansas Agricultural Experiment Station for distributing fertilizers through sprinkler irrigation systems.

Three nitrogen-source fertilizer materials were distributed evenly over the area wetted by the sprinkler, he reports. Each fertilizer flowed through the system with about equal uniformity. He used a complete fertilizer, 13-13-13, and two nitrogen carriers: Nitrate of soda (16-0-0) and ammonium nitrate (33½-0-0). All were water soluble.

Both auxiliary pump and closed tank systems may be used to inject the fertilizer into solution, Mr. Bryan says. The auxiliary pump system introduced a more uniform concentration of fertilizer over the area, although the closed tank system gave more nearly equal concentration of fertilizer elements in the solution passing through all sprinklers on a lateral line.

★

Farmers sometimes find it hard to realize how much weeds cut down crop yields, and income from crops.

Accurate experimental figures show, for instance, that one plant of yellow mustard uses twice as much nitrogen, twice as much phosphoric acid, four times as much potash and four times as much water as a well-developed oat plant.

A common ragweed uses three times as much water as does a corn plant. One lambsquarter in a hill of corn reduces the yield by one-third, according to North Dakota Agricultural College.

Flax grown by the Agricultural Experiment Station in weed-free plots, and in plots seeded with a mixture of green and yellow pigeongrass at a rate of 35 lb. per acre, at Fargo, Park River and Minot from 1949 to 1952, revealed how weeds reduce yields. Average yields for the entire experiment were 19.1 bu. of flax per acre on the weed-free plots, compared with 11.8 bu. an acre average for the weedy flax. This meant a loss of 38.5% of the crop to weeds.

In South Dakota yields were taken in bindweed infested areas of 12 oat fields and eight wheat fields. Similar samples were taken from nonweedy areas of the same fields. Yield was lowered from 17 to 62% in the bindweed infested oat fields, and from 27 to 65% in the weedy wheat fields.

★

Chemical weed killers may furnish the answer to easier establishment of birdsfoot trefoil in permanent pastures, J. R. School, Iowa State College agronomist, and D. W. Staniforth, college weed control specialist, state.

They said Dalapon, an herbicide for grassy weeds, and 2,4-DB, a killer of broadleafed weeds that doesn't harm legumes, have allowed researchers to get good stands and yields of trefoil without using a companion crop.

However, Mr. Scholl and Mr. Staniforth cautioned that the chemicals are not cleared for use on (1) crops eaten by livestock that provide milk or meat for human consumption, and (2) crops use for human consumption. So Neither Dalapon nor 2,4-DB should be used on trefoil that will be grazed in the year of seeding, they stressed.

Herbicide-treated trefoil plots were compared with both check plots with oat companion crops, and untreated plots without oats.

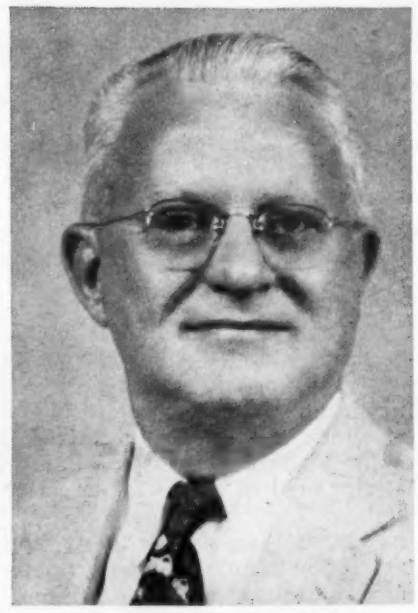
The herbicides effectively controlled weeds. Treated plots had stands equal to those in handweeded plots. Yields were depressed in the first year—apparently a result of herbicide effect on growth—but in the second year, yields from treated plots nearly equalled weed-free plantings.

★

Corn grown on soils with high fertility levels has been better able to withstand grain borer attacks in storage than corn grown on lower fertility soils, reports Dr. William A. Albrecht, chairman of the University of Missouri's soils department.

During a three year observation of corn ears grown on plots representing these two soil fertility levels, says Dr. Albrecht, there was little destruction by the grain borer of hybrid corn fertilized with both nitrogen and phosphorus. There was, however, progressive destruction by the borer of hybrid corn fertilized with nitrogen alone.

These and other tests, says Dr. Albrecht, strongly suggest "that no one single element of fertility, but all of them in balance and integration of their separate functions are required to grow plants healthy enough to ward off insects and pests."



George F. Dietz

SAFETY SPEAKER — Working out details for the annual conference of the Fertilizer Section of the National Safety Council, to be held in Chicago Oct. 20-21, is George F. Dietz, general chairman of the section. Mr. Dietz is office manager and assistant secretary-treasurer of the Fertilizer Manufacturing Cooperative, Inc., Baltimore, Md., and has been active in the work of the fertilizer safety section for many years. He was a member of the group's executive committee for four years and was elected to the general chairmanship last year. He is an active member and an officer in the Safety Engineering Club of Baltimore and is also a member of the Maryland Governor's Safety and Health Conference program planning committee. He will play a key role in the fertilizer safety conference this fall.

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Why Some Customers Don't Come Back

By ERNEST W. FAIR

Perhaps the store's monthly sales totals or the number of customers passing through suddenly reveals that a dealer has been losing more customers than he should. Or maybe he passes customers of long standing on the streets and realizes it has been a long, long time since he has seen them in the store.

When these things happen the chances are that the dealer has been losing too many of his customers. Even if the number is in the 1-10 bracket for the last month that is too many. Competition in the fertilizer business today is too keen to permit losing present customers.

Why have these customers been lost? Here, below, may be the reason, for each presents the facts behind one or more customers having changed their favorite stores. Each is easy to correct and prevent further lost customers.

Inattention to personal service: The fertilizer business is a big volume business but it is one where the customer demands a high degree of personal service. This occurs most frequently where business is exceptionally good and the store develops a system of rushing customers in and out as fast as possible.

Using the wrong type of salesman up front: The average customer's most frequent contact with the store is up front. Any small degree of discourtesy, inattention or forgetfulness at this point can be fatal. No matter how good a salesman the individual may be, if he lacks those traits required to win friends for the store, he can sell a customer only once.

Was it carelessness or an oversight that caused unhappiness on the part of the customer following his last purchase from the store? There is no room in business for acts of carelessness or for oversights. When such things occur then and there is the time to take a long and hard look at how the dealer is doing things and plug up those spots where carelessness or oversights are occurring. If he lets them slide there will be more and more lost customers.

Being out of merchandise: This doesn't help hold customers. Empty shelves or no supply on demand items will discourage even the best of customers. Each has his particular favorite items but if he comes in two or three separate times and finds the dealer out of what he needs then he is soon going to start visiting some other store.

Sloppiness in handling deliveries: This has lost many good customers. Farm supplies represent considerable cash outlay by customers and are therefore important to them. If delivery men throw them around and handle them as though they were so much wastepaper they build customer resentment against the store.

Aggressiveness of competition: The dealer just can't sit back and figure he has a "captive" customer list. The same push and drive which brought the customer to the store in the first place has to be kept alive to hold him.

Lack of equipment, tools or supplies for unusual services: These force the customer to look to some one else for his needs. Often by telling the customer his needs can't be filled he may take all of his business to another store.

Unpleasant situations caused in the handling of credit and charge accounts result in many lost customers: Even the best people run into spots where they cannot immediately pay bills. When the dealer treats a good customer, under those circumstances, as though he were one of the town's conventional bad credit risks he may create a good customer for some other dealer.

Lack of product knowledge or information: This encourages customers to go to the stores of competitors who keep themselves well informed. It's a big order these days but the dealer (as well as every employee) has to be better informed on new discoveries and techniques than his customers.

Lack of parking space: It pays to provide plenty of parking space around the store and it is good procedure to discourage loafers who hang around in idle conversation.

Limited facilities: Are the store facilities too limited for the business? When a customer wants service he wants it then and there—not an hour or days later. Attempting to do a big volume business with too little equipment and too few personnel means a continuing stream of lost customers; all promotional effort to obtain them actually has gone to waste.

Too many errors: Have too many mistakes occurred lately? Accuracy in each and every detail of handling a customer's order, delivering it, checking the change-making procedure or the proper charging for credit, billing, etc., all offer opportunity to hold customers and in the same manner lose them by making these mistakes.

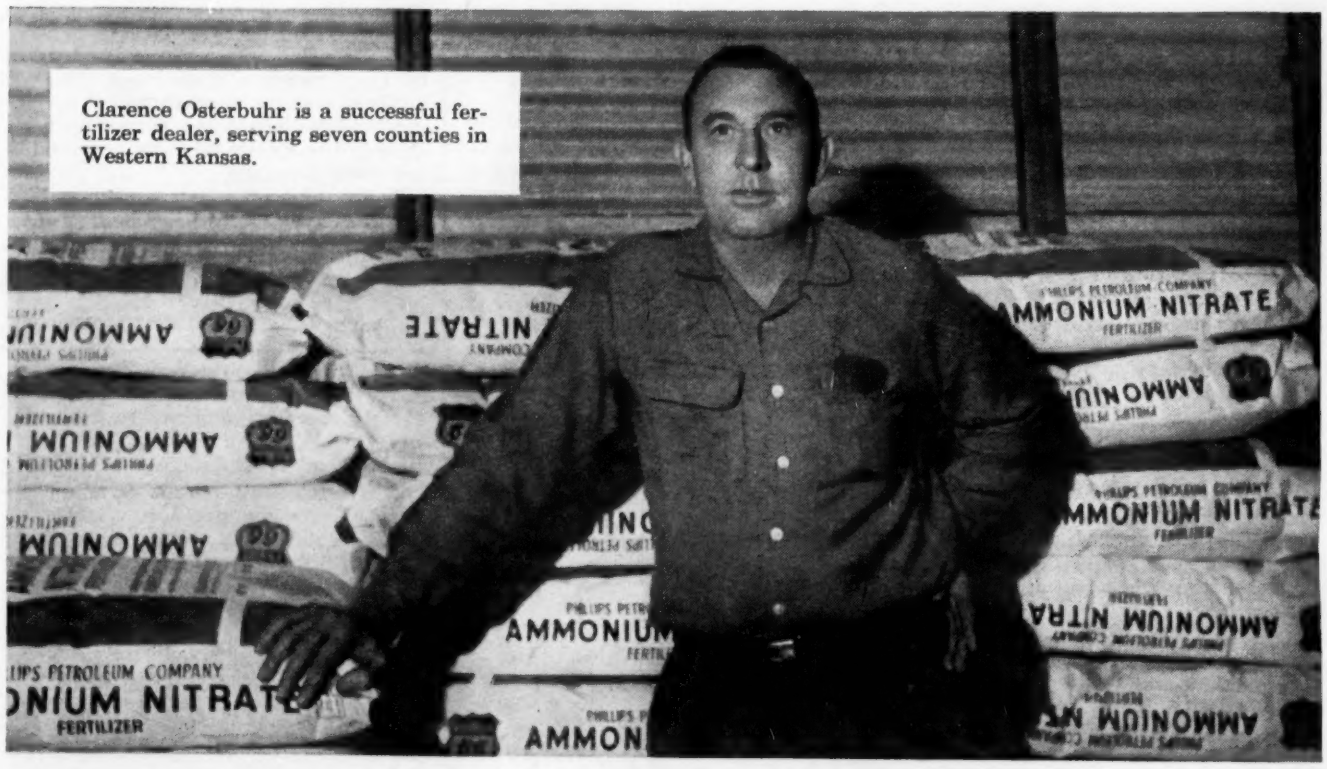
Frequent absences of owner: Has the boss been making himself too scarce lately? Farm supply service is a very personal business—customers want to see and do business with the "boss himself" from time to time. The element of personal contact is as great as in any other field.

Out-of-date store: Is the store getting old-fashioned? Customers prefer the bright, new places in every field of enterprise; farm supply stores are no exception. Often just a coat of paint is all that is needed. Sometimes only a few dollars spent wisely can give an older store a new and glamorous look.

Lack of courtesy: It is too easy to get too familiar with old customers and take them for granted. The dealer should never forget all of the common courtesies with even the oldest customers.

Failure to use manufacturers' aids: Is all manufacturers' promotional material stuck in a corner somewhere to be put up later? Manufacturers spend many dollars each month supplying well planned promotional material not only to secure new business for their products but to hold customers as well. When the dealer fails to use

(Turn to CUSTOMERS, page 16)



Clarence Osterbuhr is a successful fertilizer dealer, serving seven counties in Western Kansas.

"My Customers Prefer Phillips *66* Ammonium Nitrate"—

Clarence Osterbuhr
ANAMO CO., INC., Garden City, Kansas

Proof of performance: Users of new Phillips *66* Ammonium Nitrate find it easier to handle . . . the result of an exclusive Phillips *66* process that gives hard, dry and uniformly round prills. Stores better, flows more freely, spreads more uniformly.

Mr. Osterbuhr says: "We serve an area where the farmers have a comparatively long experience with nitrogen fertilizer. That's why I'm particularly pleased to offer Phillips *66* Ammonium Nitrate to my customers. Its uniformity and its exceptional free flowing qualities make it a favorite with farm users who expect the best."

The outstanding performance of Phillips *66* Ammonium Nitrate is winning new customers for other dealers, too. Their farm customers like its ease of handling and uniform spreading, which helps give better yields.

Dealers appreciate the extras in the Phillips *66* program . . . consistent, convincing advertising of Phillips *66* Ammonium Nitrate in leading farm papers, personal service from Phillips *66* field men, and prompt deliveries which help dealers sell more, profit more. Order your supply of Phillips *66* Ammonium Nitrate today.

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WICHITA, KAN.—*501 KFH Building*

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Federal funds in the amount of $1 million were made available to help stop the outbreak of migratory grasshoppers in Colorado, Kansas, Oklahoma, New Mexico and Texas. This represents about a third of the expected cost of spraying some 5 million acres in 46 counties of these five states. About 80% of the total acres comprise rangeland.

Insect activity all over the U.S. stepped up early in July, with corn borer, grasshoppers, armyworm and alfalfa aphids being among the most prominent pests mentioned in reports.

The 3% excise tax on freight movements was ended by Congress, effective Aug. 1, 1958. The move was hailed by the fertilizer industry as a boon to its tight profit margin situation.

Spencer Chemical Co. closed its Vicksburg, Miss., anhydrous ammonia plant on June 21 for the period of approximately a month, to adjust its inventories. The company continues to make deliveries from the plant as usual.

Edward Block was named to head the chemical division of Olin Mathieson Chemical Corp. He was formerly vice president in charge of the company's agricultural and phosphate chemicals divisions.

Fertilizer consumption in the U.S. and possessions totaled 22.7 million tons in the fiscal year ended June 30, 1957, the U.S. Department of Agriculture reported. This was an increase of 515,041 tons, or 1.7%, over the use the previous fiscal year.

Mass DDT spray projects got a clean bill of health in a decision following a U.S. District Court trial in Brooklyn. Action had been brought to restrain the mass spray projects, and plaintiffs charged that such sprayings of gypsy moth were injurious to health, property and wildlife. Walter Bruchhausen, federal judge, said in his decision that mass DDT spraying did not live up to these charges.

Approval by the Senate judiciary committee of the Kefauver-Patman amendment to the Robinson-Patman Act was given recently. The provisions of the bill cover only food, drugs and cosmetics which would be used in human food or applications. Adoption of the act would deny to manufacturers the defense that reductions in price resulted from a competitive situation.

Synthetic anhydrous ammonia output in April was less than it had been the month previous, according to the Bureau of the Census. April production was 329,837 tons as compared to 339,015 tons in March.

Jacob White was named president of the Nitrogen Division, Allied Chemical Corp., New York. Mr. White, who has been associated with Allied since 1921, succeeds Hugo Riemer in his new position. The new president was advanced from the office of vice president.

Federal, state and local agencies were fighting a major grasshopper outbreak in the Southwest states. In some areas it was described as the worst plague since the 1930's . . . On the eve of the annual meeting of the National Plant Food Institute, industry leaders told Croplife that they generally were optimistic about overcoming the slow fertilizer start caused by cold, wet weather this spring.

At the convention speakers explored ways and means to alter farmers' attitudes and practices regarding use of plant foods. It was generally concluded that soil tests, farm demonstrations, alert retailers, a broad program of education and adequate credit are the principal factors to bend the fertilizer use curve upwards.

Plant nutrient supplies for 1957-58 fiscal year are adequate, but still down 2% from the past fiscal year, the U.S. Department of Agriculture reported in its annual "Fertilizer Situation" compilation distributed early in June. An estimated 6,506,000 tons of nitrogen, phosphate and potash are available for domestic fertilizer purposes in the fiscal year ending June 30, 1958, the report said.

The National Cotton Council forecast a critical situation for the cotton industry unless changes are made in existing federal farm legislation during the current session of Congress. A spokesman said that rules must be changed to allow production of adequate supplies of cotton at competitive prices to compete in world markets.

Federal Land Banks reported an unusual level of farm loans to enable farmers to purchase new equipment. This fact is regarded as being a good omen for the fertilizer and pesticide industries, since the investment in more efficient machines must be matched by greater productivity from the soil.

A bill to remove the 3% federal tax on rail freight was not given a very long chance of success in the Senate early in June. The bill, introduced by Sen. George Smathers (D. Fla.) had formidable opposition in the administration's reluctance to grant any reduction in taxes in 1958.

Maurice H. Lockwood resigned his position of vice president of International Minerals & Chemical Corp., in charge of the Plant Food Div. John D. Zigler became general manager of the division.

The Senate Interstate Commerce Committee approved and sent to the Senate a floor bill which would have a marked effect on the use of private carriers engaged in hauling agricultural commodities in return haul loads in interstate commerce. The amendment will be fought by the association of private carriers, but has the support of railroads and trucking associations.

Two new pesticide plants were completed in May. One, operated by Arizona Fertilizers, Inc., Phoenix, is located at Willcox, Ariz.; the other, by General Chemical Division, Allied Chemical Corp., is in Minneapolis.

Congress was preparing legislation to provide funds for research on the effects of pesticides on wildlife. Government officials hailed the move as being one of the most constructive to come about in years, in bridging the gap between the USDA and the Department of Interior caused by misunderstanding in seeking ways to gain common ends.

HANDLING CUSTOMER COMPLAINTS

(Continued from page 11)

after a considerable lapse of time it is also good procedure to settle such complaints on a "depreciation" basis. An adjustment based on the unexpired use or normal life to which the customer was entitled will be reasonably acceptable by nine out of ten people. The tire manufacturers, for example, have done this for years and established a precedent that many other industries should be following today.

It is also wise procedure to center complaint handling in one individual of the firm rather than permitting a number (including salesmen) to do so. Not only can that person become more skillful in handling these, knowing how to recognize and handle individual situations, etc., but he can better do so with the firm's profit picture in mind at the same time.

Diplomatic handling of customer complaints, no matter what program we may be using, requires keeping constantly in mind a few important factors:

1) Respect the customer's sincerity. Only rarely will we meet the individual seeking "something for nothing." Most customers sincerely believe in the justice of their argument and their demands.

2) Be understanding and sympathetic. An antagonistic or belligerent attitude invariably makes matters more difficult.

3) Put the customer at ease during the discussion. Seat him comfortably and in privacy if possible. When the customer is relaxed and at ease he is a much more understanding individual.

4) Even if the dealer is set to make a complete refund, he should take a moment out to clearly present his side of the transaction. It will be surprising how many customers will reduce their refund demands when hearing what is said.

5) Above all, the dealer should not challenge the customer's opinions or statements.

Long life in the farm supply business requires that the dealer live up to guarantees of satisfaction for customers but this continued profitable existence is equally dependent upon doing it without loss to the firm. Keeping such refunds to a minimum of cost is as essential as holding the goodwill of these customers. After all, their goodwill in the future will be of little use if the dealer is no longer in business to enjoy it.

"What will it take to satisfy you?" is a question the dealer can always ask after he has presented his own side of the picture.

DROUTH INSURANCE

(Continued from page 9)

in the surface soil layer. When this layer of soil becomes dried out, the bacteria become temporarily inactive and the supply of nitrogen for the alfalfa plant is limited.

With both 200- and 300-lb. applications of nitrogen per acre, yields of forage in 1957 were about a ton under those of 1956, a very favorable rainfall year. The protein content of the 1957 forage, however, was up from 15-16 percent in 1956 to 18-19 percent in 1957. As a result, yields of protein per acre were exactly the same in 1957 as in 1956. In both years, recovery of the applied nitrogen at the 200-pound level was 56 percent, and at the 300-pound level was 47 percent.

These nitrogen-fertilized grasses required large amounts of potash to maintain high levels of yield. Results of this trial would indicate that the potassium requirements of nitrogen-fertilized grasses may be fully as high as those of alfalfa. At this location, phosphorus did not appear to be critical for the growth of grasses.

Unfertilized grasses yielded 1½ tons per acre in three cuttings. Most of this yield was in the first cutting. Subsequent yields were so small that field machinery couldn't harvest the grass. In practice, the only way to harvest such small amounts (300 to 600 pounds of dry matter per acre) would be to graze the field.

Yields of Forage, Percentage of Protein, and Yields of Protein of Orchardgrass and Reed Canarygrass in 1956 and 1957, at the Rutgers Dairy Research Farm in Sussex, N.J.

Nitrogen treatment	Orchardgrass 1956 Dry matter yields	1956 Protein	1956 Protein yields	Orchardgrass 1957 Dry matter yields	1957 Protein	1957 Protein yields
lb./acre	lb./acre	%	lb./acre	lb./acre	%	lb./acre
0	3496	12.52	439	3256	11.76	405
50	4233	12.55	535	3980	12.56	545
100	4649	12.17	569	4941	12.57	667
200	7070	14.61	1077	6340	15.35	1031
300	8187	14.88	1234	6938	17.41	1201
	Reed canarygrass 1956			Reed canarygrass 1957		
0	3633	13.14	478	2712	14.93	405
50	4505	13.44	615	4031	17.02	686
100	5097	13.30	676	4643	17.04	791
200	7868	14.87	1202	6250	18.70	1202
300	9104	15.02	1379	6941	20.91	1454

CUSTOMERS

(Continued from page 15)

this material he is letting competition get his best customers.

Pleasant atmosphere: Is the store a nice place to stop at or has it become a meeting place for loafers and others who crowd around and make the average customer feel ill-at-ease?

Wrong merchandise: Have customers been asking for items not handled. The dealer cannot handle everything, of course, but he does have to stock the items customers want. When he fails to watch these desires closely and does not try to take care of them he is surely sending each of those customers to some other store not only for this particular need but for everything else as well.

What's new?: What is someone else offering customers? It pays to check around frequently and find out. Then the dealer must duplicate or counter such offers if he wishes to hold his own.

Morton Names Agency

CHICAGO—Morton Chemical Co., manufacturer of an extensive line of agricultural and industrial chemicals, has appointed Aubrey, Finlay, Marley & Hodgson, Inc. as its advertising agency, Joseph E. Rich, president, has announced. C. Kirk McComb, formerly advertising manager for Panogen, Inc., will direct the advertising for the company.

ENTOMOLOGIST NAMED

WESLACO, TEXAS — Dr. George P. Wene, who left the Valley Experiment Station as entomologist to join the Cotton Research Center staff at Tempe, Ariz., is being succeeded here by Dr. L. W. Getzin. Dr. Getzin received his B.S., M.S. and Ph.D. degrees from the University of Wisconsin and spent four seasons at the vegetable crops laboratory in Kenosha. For his doctor's thesis, Dr. Getzin did research on the effect of systemic insecticide residues on plants and soils.

SALES

(Continued from page 1)

get the starter fertilizer needed in spite of a delayed or too short planting season.

Now that the basic ways of moving fertilizer to the farmer off-season have been reviewed, what are the mechanics to be used in accomplishing them?

From an industry viewpoint, there is a great deal that can be done; and this does not infer that the fertilizer industry has failed to keep abreast of the changing times. The joint interest of fertilizer manufacturers through the National Plant Food Institute has provided much very interesting information and several suggestions for promoting the use of fertilizers during off-season. This work deserves to be continued and expanded if possible.

Industry leaders can encourage the work of the agricultural colleges and experiment stations in finding new information and making further recommendations for using plant foods in the off-season. Of course, when these new methods are ready for field use, the manufacturer and his field force must be prepared to carry the story to his dealers and farmer-customers.

The fertilizer dealer is really the activator for putting to work these new methods of moving fertilizers during the off-season. Through him the farmer can learn about the new application practices.

If he is not already doing it, every plant food dealer should be constantly on the lookout for new and improved merchandising practices. He should not hesitate to call in all the help the manufacturer can provide. In most cases, he will find his manufacturer willing to go all-out on a sound program.

In applying fertilizers to already established crops, introducing new crops, or in programming for storing fertilizers in the soils, the dealer should create a close liaison between his store and the offices of the college and the local agricultural advisors. Farmer meetings, using the help of the manufacturer's agronomist, the local county agent, agricultural teacher, or soil conservationist, should be a prominent part of the dealer's sales promotion program.

New sales literature and fact sheets should be developed. Often the manufacturer will give a great deal of help along this line. Be sure that this material is truthful, applicable, and easy to read and understand.

Advertising has a high value in developing new programs. Use it to the fullest; radio and frequently television should be coupled with local newspaper advertising to give well-rounded coverage.

Demonstrations often tell the most complete story. Several should be conducted in strategic places throughout the sales area.

All in all, finding new ways for applying fertilizers during off-season is rather a long-range program. Don't be discouraged if at first progress seems slow. Patience and continued pressure through advertising and sales promotion efforts will pay off. Remember, any merchandising method that really benefits the farmer will benefit the dealer, as well as the supplier, the plant food manufacturer.

INSECT NOTES

(Continued from page 8)

the state, a University of Nebraska insect specialist said July 4.

"In eastern and central Nebraska, most corn 40-50 inches in height with the leaves extended has 55 to 100% infestations of corn borer now," according to Robert E. Roselle, University extension entomologist.

The heavy infestation apparently has resulted from favorable weather conditions both during the winter and during the period when the egg-laying moths emerged, Mr. Roselle said.

Cotton Affected by Weevils, Bollworms

KNOXVILLE, TENN.—Unusually cool nights have slowed cotton growth down but most fields are squaring at this time. There is a good deal of moisture in the soil over the West Tennessee area.

Boll weevil punctures were found in one field of older cotton this week on Ames Plantation. These squares were punctured by overwintered weevils. The infestation count was 10%. Squares in this field were just old enough to be punctured by weevil. Regular terminal bud survey was hampered by bud injury from a complex of moth larvae. There should be enough squares old enough by next week (July 1) to get square counts.

All hibernating weevils should have emerged by next week due to moisture and high temperatures during the day. Survey so far this season indicates that the infestations are confined to regular weevil infested counties to the south. Some weevils may be present further north in some of the river counties but none have been found so far this season. Close attention should be paid to the fields by the grower at this time in order to start control to get an early setting of squares. Conditions are favorable for weevil build-up at this time.

Bollworms are general and are causing considerable damage to older cotton along with a complex of other worms. Counts ran from 0 to 19 worms per hundred terminals. Most of these worms are small and control is best when they are in this stage. Considerable square and boll damage can be expected in the infested fields if control measures are not taken. In the weevil infested area, it is a good idea to use an insecticide for worm control along with treatment for the boll weevil.

In those areas where boll weevil control is not necessary, growers should check the terminal buds for worm infestations and use control when needed. It is essential to get to these worms early for good control.

Lepidoptera larvae are general with light to moderate infestations. Infestations include a complex of yellow striped armyworm, cabbage looper, garden webworm, bollworm and a cut worm. Control is needed where a considerable amount of foliage injury can be found.

Cool nights and plenty of moisture have caused rapid build-ups of aphids over most of the area. Predatory insects are doing a good job of control but infestations are out of control in and around Lake County and definitely need control at this time. Aphids are heavy enough to stunt older cotton and stop growth on the younger fields.

Cauliflower: left, boron treated; right, brown curd with boron deficiency
Alfalfa yellows and rosetting due to boron deficiency
EXAMPLES OF BORON DEFICIENT CROPS
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Off-Season Fertilizer Opportunities Seen In Texas Agriculture by State Agronomist

By A. G. Caldwell

Associate Professor, Department of Agronomy
Texas A&M College
College Station, Texas

NUMEROUS opportunities exist for adjustments in the time when fertilizers should be applied. These may be greatest when crops with varying nutrient requirements are used in rotation. Research has shown that some crops respond best to fertilizer when it is applied well in advance of planting, sometimes even in advance of the preceding crop.

The time at which fertilizer is applied to pastures often has been shown to be almost as important as the amount or type of fertilizer which is applied. An example of this situation is the early fall application of phosphate and potash to native pastures to stimulate clover growth for fall and winter grazing. The use of a light nitrogen top dressing in early spring gives a good, balanced grass-clover pasture during the spring and early summer months. The increased growth is higher in protein and phosphorus, both of which are essential to thrifty livestock production. In a rice-pasture rotation, the annual application of 30 pounds of P_2O_5 from superphosphate increases pasture production and decreases the fertilizer phosphate and nitrogen required for top yields the first year the land is put back to rice.

For most efficient use of rainfall and fertilizer, the nitrogen fertilization program should be geared to the amount of moisture that is available. When soil moisture or irrigation is available, refertilization of grass meadows and pastures with nitrogen is recommended each time they are mowed or grazed. Small grain pastures respond markedly to nitrogen top dressing in the fall, winter and early spring, when moisture and other climatic factors usually are favorable for their growth.

This practice provides needed livestock feed at a time when good grazing is nearly always in short supply. Temporary pastures (both winter and summer) should be liberally fertilized with nitrogen, phosphate and potash in order to obtain good production from available soil moisture.

Small grains and rice usually respond favorably to nitrogen top dressing. In the case of fall-seeded grains, it usually is desirable to apply nitrogen in the spring as soon as the danger of severe frost is past. When grazing is to be practiced during part of the winter, nitrogen must be applied to the small grain at planting time.

Top dressing of rice frequently is done by airplanes. Good responses are obtained when the nitrogen is applied 20 to 40 days after planting with short-season and long-season varieties, respectively.

The opportunities for fertilization of row crops in the Southwest are restricted by high temperatures and the uncertainty of summer rainfall. Only limited amounts of nitrogen may be applied ahead of planting for row crops on sandy soils where leaching occurs readily.

Where irrigation is available, however, all of the nitrogen can be applied as a preplant operation on the finer textured soils. With uncertain moisture or on a soil that permits leaching, it is advisable to apply only part of the nitrogen at planting or before, provided soil moisture is favorable. The remainder of the needed nitrogen should be applied as a sidedressing. So far as possible, application rates should be geared to the available moisture to reduce risk through more efficient use of both fertilizer and moisture.

Certain crops do not respond especially well to the direct application of fertilizer. Soybeans and peanuts generally yield best on fertile soils, although they are not particularly responsive to fertilizer applied at planting time. To assure that these crops will have a fertile soil it is well to fertilize the preceding crops liberally or apply the fertilizer well in advance of the planting date.

Chemical Herbicides Do Excellent Job of Pasture Renovation in Alabama Trials

AUBURN, ALA.—Acres upon acres of once productive pastures in Alabama and the South have become overrun with carpetgrass, thus harming the value of the land, according to a recent study by R. M. Patterson and V. S. Searcy of the department of agronomy and soils, Alabama Agricultural Experiment Station.

The agronomists point out that despite its vigorous growth, carpetgrass is a poor pasture plant. It is low in feed value and it chokes out legumes planted with it. For these reasons, carpetgrass is not recommended for improved pastures in Alabama, the authors said.

In screening tests of several weedicides, it was observed that Dallisgrass recovered from applications of Dowpon, whereas carpetgrass did not.

Earlier research on pasture renovation by the Alabama Polytechnic Institute agricultural experiment station involved study of mechanical methods of killing the pest grass, fertilizing, and seeding to desirable pasture plants.

In a series of experiments begun at the Tuskegee experiment field in 1956 and at the R. L. Moore farm near Auburn in 1957, renovation of pasture by use of chemicals and tillage and their combination was studied. In these experiments Dowpon was applied at rates of 5, 10, and 15 lb. an acre in late July and early August. Some plots were not chemically sprayed but were turned and fallowed. Lime and fertilizer were applied according to soil test.

Table 1. Dry Forage Yields from Renovated Pasture, 1957 Grazing Season, Tuskegee Experiment Field

Method of renovation	Dry forage per acre, lb. White clover	Carpetgrass
Chemical	3,780	1,370
Fallow	3,273	1,322
Seeded only .	722	4,739
None	63	4,598
	Dallisgrass	Bahiagrass
Chemical	1,623	432
Fallow	1,000	868
Seeded only .	1,522	0
None	310	..

White clover with either Dallisgrass or Pensacola Bahiagrass was seeded in mid-September with a grain drill equipped with a small seed attachment.

Results

Excellent stands of white clover were obtained when planted on a chemically-killed sod that was not plowed or disked. The stands and early growth were slightly better when highest rate of chemical was used. However, there were no important differences in white clover yields resulting from the three rates of Dowpon.

At the Tuskegee Field in 1956, stands of white clover on the prepared plots were reduced by a damping-off organism. Full stands finally developed when the weather became cooler and hard seed germinated. At the Moore farm severe heaving occurred on the prepared plots in the winter of 1957-58, depleting the stand. Neither damping-off nor heaving occurred on unplowed plots treated with Dowpon.

The best white clover yields were obtained on the chemically treated plots, where the clover was seeded on dead carpetgrass sod, Table 1. Although growth on fallowed plots was late because of damping-off, good yields were obtained. White clover seeded on an untreated sod was not successful. Yields of Dallisgrass were not reduced by chemical treatment. Bahiagrass was better established and more productive when planted on a fallowed seedbed.

The carpetgrass and Dallisgrass stands resulting from the several renovation treatments are listed below. These stands are given as the percentage of vegetation at the end of first growing season at the Tuskegee Field test started in 1956. It should be noted that where carpetgrass was controlled, the Dallisgrass increased. It is also pointed out that some Dallisgrass was present before the treatments were applied, since the sward on the untreated plots contained 17% Dallisgrass.

Method	% Carpetgrass	% Dallisgrass
Chemical ...	26	57
Fallow	21	41
Seeded only..	68	26
None	80	17

The percentages of carpetgrass and Bahiagrass at the end of the first growing season are as follows:

Method	% Carpetgrass	% Bahiagrass
Chemical ...	22	35
Fallow	16	49
Seeded only..	79	0
None	80	..

No Bahiagrass was established when carpetgrass was not controlled.

The authors state that this report should not be considered a recommendation for use of Dowpon on pastures, since this chemical had not been cleared under the provisions of the Federal Food, Drug, and Cosmetic Act for this purpose when the tests were made. However, further study is being conducted to determine the length of beneficial effects from the chemical pasture renovation.

In summary, it should be recalled that Dowpon at rates of 5, 10, and 15 lb. an acre was as good or better than land preparation for establishing white clover in carpetgrass pasture, but at the 3 rates did not kill established Dallisgrass.

Heavy Fertilization Key To Continuous Corn Crops

ROSEMOUNT, MINN.—Corn raised 5 or 10 continuous years on the same field is possible in many areas of Minnesota, visitors at the University of Minnesota agricultural experiment station's field day on July 1 were told.

Dr. W. P. Martin, head of the University soils department, said "continuous" corn raising can be a big help to farmers shifting to more intensive livestock production. He showed research plots which have raised nothing but corn since 1953. Yields, he said, have been as high as 133 bushels per acre.

Continuous corn has been a major question in Minnesota, one objection being the thought that it fails to keep up soil organic matter. Dr. Martin said, however, that with heavy fertilizing, corn stalks can supply nearly as much organic matter as will legumes. He said continuous corn calls for:

Heavy fertilizer rates—up to 800 lb. complete fertilizer an acre in the spring, a 200-pound treatment at planting time, and sidedressing.

High corn plant population—18-20,000 plants per acre.

Chemical weed control.

Treatment with soil insecticides to prevent an insect build-up in the field.

Minimum tillage and careful cultivation, to protect soil structure.

Crop rotations including several years of forages are still best on rolling land, he pointed out. But on level fields, a farmer can fit continuous corn raising in as an integral part of his over-all farm plan.

If necessary to control erosion, a field can be left in alfalfa for as long as 7 or 8 years, Dr. J. M. MacGregor, soils scientist, said. He showed station plots which had been in alfalfa since 1950.

Such long-time alfalfa establishment requires heavy fertilizing, Dr. MacGregor said. The most effective fertilizer treatment was 300 lb. 0-20-20 applied the spring before seeding and 200 lb. of the same fertilizer every spring from then on. This treatment resulted in average hay yields of more than 4½ tons an acre for 7 years.

Vulcan Container Co. Names Leo T. Ryan

BIRMINGHAM, ALA.—Leo T. Ryan has been named general sales manager of Vulcan Steel Container Co., according to Gordon D. Zuck, president of the firm. Mr. Ryan will make his headquarters in Birmingham.

A native of Alabama, Mr. Ryan attended the University of Alabama and received his degree in commerce and business administration. He has had wide specialized experience in the container field and is well known among the paint, chemical, agricultural insecticide and petroleum product producers throughout the South.

TO NEW POSITION

NEW YORK—Arthur T. Severance, head of the commercial analysis group of West Virginia Pulp and Paper Company's merchant paper division at Mechanicville, N.Y., has been named regional administration manager of the company's multiwall bag division. He will be on the staff of Sheldon Y. Carnes, regional manager of the division, with headquarters in New York City.

R. L. Sherrill

SALES APPOINTMENT—Raymond Bag Corp. has announced the appointment of Robert L. Sherrill of Memphis to its general sales staff. Mr. Sherrill's sales territory will consist of Mississippi, Tennessee, Arkansas and Louisiana. He has had extensive experience in the bag industry, having spent 15 years each with Bemis Bro. Bag Co. and Union Bag-Camp Paper Corp.

PATENTS

(Continued from page 3)

Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Germany.

Purple Death, in capital letters, for rodenticides. Filed Nov. 18, 1957 by O. E. Linck Co., Inc., Clifton, N.J. First use Sept. 11, 1957.

Roxwood, in hand-lettered form, for fertilizer. Filed Jan. 22, 1958, by Woodward & Dickerson, Inc., Philadelphia, Pa. First use April 28, 1955.

Coastal, in capital letters, for commercial fertilizers. Filed Feb. 19, 1958 by Coastal Chemical Corp., Yazoo City, Miss. First use Nov. 14, 1957.

Premier, in capital letters, for peat moss, peat humus, with or without inorganic or organic substances, for agricultural or horticultural use as a fertilizer, soil conditioner, combination fertilizer and soil conditioner, soil builder, and plant food. Filed March 12, 1958, by Premier Peat Moss Corp., New York. First use July 1, 1933.

Perma-Phos, in capital letters, for phosphate rock for use as a fertilizer. Filed March 17, 1958, by International Minerals & Chemical Corp., Chicago, Ill.

Handbook Describes How to Get Above-Average Yields

WASHINGTON—Fertilizer experiments point ways to top yields for farmers interested in above-average crops, report A. L. Lang and Samuel R. Aldrich, University of Illinois soil scientists, in the new handbook on "Hidden Hunger in Crops," recently published by the American Potash Institute.

When planning new field experiments with fertilizer, public or private, the Illinois scientists suggest five steps to better results:

(1) Make proper agronomic comparisons. Use the "full treatment" plots as the standard with which to compare all other treatment combinations.

(2) Try more than enough fertilizer. Failure to include high enough treatments to supply slightly more than enough for top yields is a common weakness. The heaviest rates tried have sometimes been what were estimated to be near the practical economic level for that time. Failure to bracket the full fertilizer response curve results in yields still going up with the highest treatment. Thus, results cannot be fully interpreted.

(3) Provide for flexibility of treatments in long-time plots. Include areas on which new practices can be tried out in direct comparison to the original treatments. Don't allow original treatments to become "sacred" and unalterable. Provide flexibility in varieties, planting rates, over-all cultural practices, proper fertilizer placement, etc.

(4) Make maximum numbers of physical and chemical measurements, as well as observations. Save plant and soil samples for chemical analyses at regular intervals during the experiments.

(5) Make layouts that will allow for statistical analyses of data. Statistical treatment, however, cannot improve the accuracy of experimental work or correct errors in agronomic comparisons or poor choice of locations. Good agronomic judgment is the first requirement for planning worthwhile experiments.

Nebraska Laboratory to Expand Testing Services

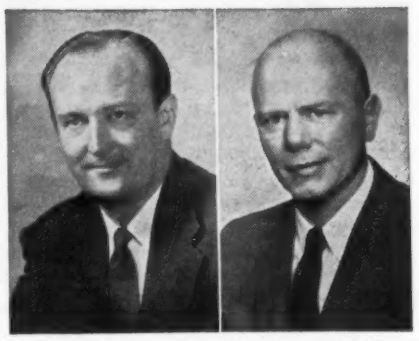
LINCOLN, NEB.—Harris Laboratories, Inc., Lincoln, has purchased the Lexington Laboratories of Lexington, Neb., an independent soil, feed and agricultural laboratory. Harris will continue to operate it at Lexington.

Paul E. Nickel, soil scientist and chemist, will continue to act as general manager. Plans are developing to expand the facilities and services for the agricultural industry.

Lewis E. Harris, president of Harris Laboratories, Inc., announced that a new Lexington location with more than double the present space had been leased. New equipment will be installed at Lexington Laboratories during this summer and facilities will be available to handle over 80,000 soil samples a year, in addition to increased volumes of dehydrated alfalfa and feed samples.

Research and product development services will be available to carry out projects on soil fertility, uses of trace elements, new fertilizers, pesticides and herbicides.

Lexington Laboratories will serve farmers, alfalfa dehydrators, fertilizer manufacturers, and other clients in the agricultural industry in a six state area. Other specialized laboratory services will be coordinated with the Harris Laboratories, Inc. facilities in the Lincoln office, the company says.



C. W. Akin S. M. Spencer

Bemis Omaha Manager Named to New Post

ST. LOUIS—C. W. Akin, manager of the Omaha bag factory and sales division of Bemis Bro. Bag Co., has succeeded H. C. Davis as director of group VI company operations. Mr. Akin will be responsible for the activities of Bemis' paper specialty, plastic package and TransWall coated products plants.

Mr. Akin will be succeeded as manager at Omaha by S. M. Spencer, assistant manager of the St. Louis plant and sales division.

Mr. Akin has been associated with the bag industry since 1932, when he joined the Jaite Co. at St. Helens, Ore. Jaite's St. Helens plant was purchased by Bemis in 1941, and he was appointed sales manager for the plant in 1946. In 1948 he was transferred to Bemis' general offices in St. Louis and named supervisor of paper bag sales for the entire company. He was appointed assistant director of sales in 1953, and manager of the Omaha plant in 1956.

Mr. Spencer joined Bemis in 1937, engaging in the sales promotion of open-mesh produce bags. He was placed in charge of the company's Oklahoma City sales office in 1940. He was appointed supervisor of textile bag sales for the entire company in 1948, and assistant manager of the St. Louis plant in 1954.

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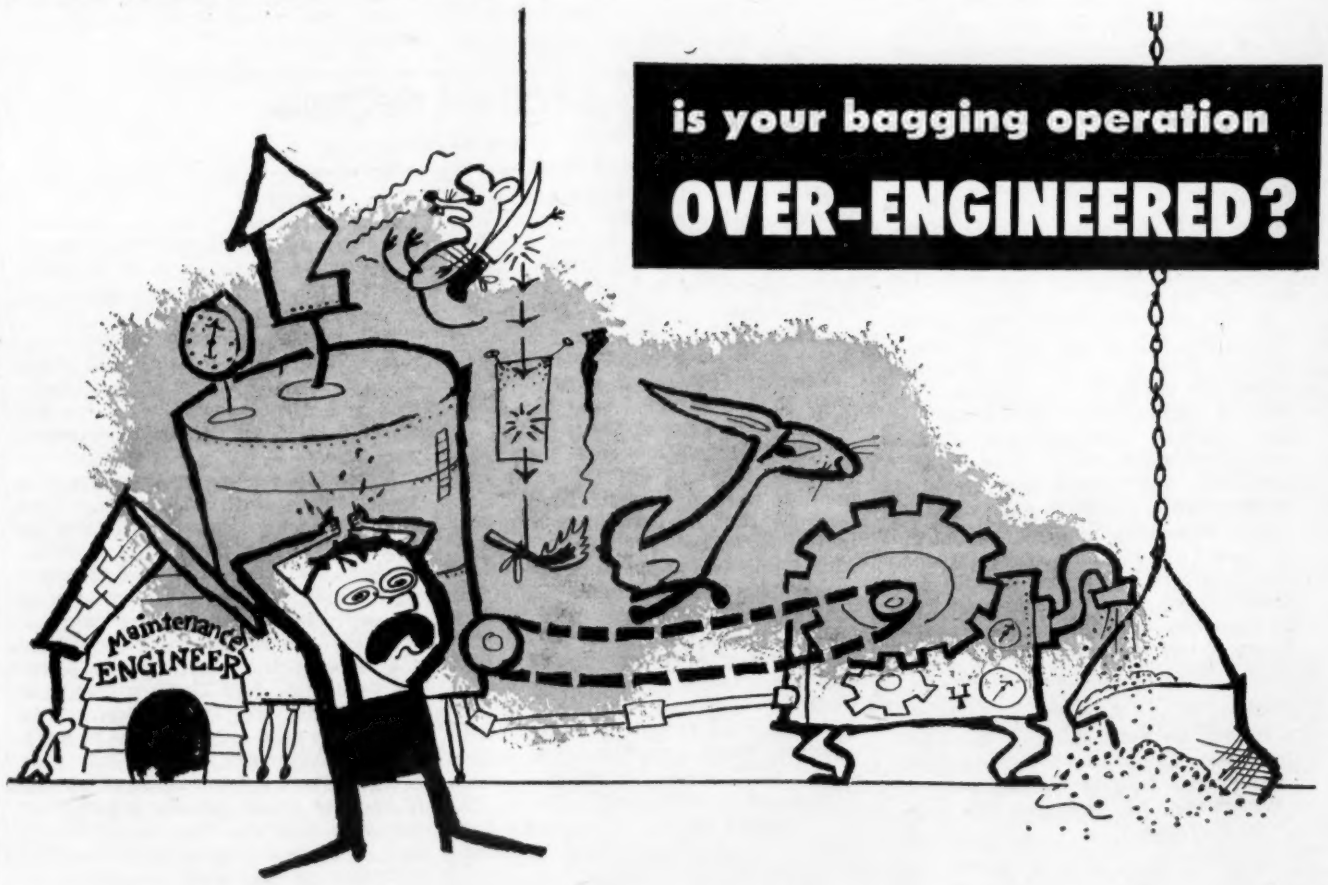

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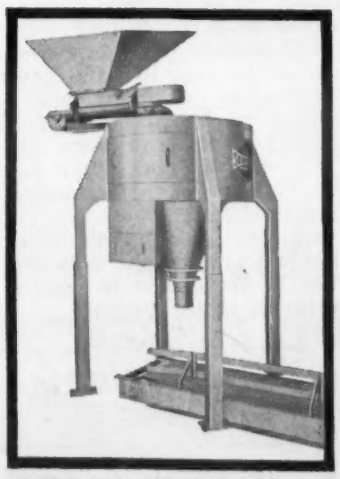

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FARM BILL

(Continued from page 1)

is the broad relaxation of acreage allotments for the crop which will be most effective in the area of large cotton farms where those producers with low cost operations are willing to accept lower levels of support.

The Senate farm bill can't get to first base unless the Senate will adopt the generally accepted view that cotton must have larger acreage next year than that which would be imposed by the sliding scale schedule of the farm act of 1949.

The Senate farm bill with its modified provisions as compared with the House omnibus bill which never gained floor recognition, is certain of adoption primarily because of its relaxation feature in connection with cotton acreage.

This Senate bill, expected to be adopted by the upper chamber, will open the sluice gates not only for the production of cotton in the next few years but also will win the same results for corn and other feed grain, since the Senate bill would end acreage allotments for corn and bind that commodity to a sliding scale flexible price adjustment when supply and demand come into balance.

The Senate bill is the cornerstone of a basic bipartisan deal within Congress to bail out the cotton industry. Here is about the way the deal works out:

It will give the small cotton grower in the old cotton belt a larger acreage base than would be provided under the present farm law of 1949 with a temporary higher level of price support than does the liberalized acreage for cotton farmers willing to accept a much lower level of price support, say 65% of parity.

The Senate is expected to accept its farm bill to which will be attached the wool bill, and strangely the Senate will again pass its version of Public Law 480—already adopted by the Senate—and send the whole parcel to the House in one package.

Here is the bipartisan strategy: Leaders on both sides of the Senate and House are agreed that something must be done for cotton. The Senate bill provides this avenue of relief.

However the problem is to gain support for the passage of the reciprocal trade agreements act.

If the farm bill passes with its lower level so price support at this time, which would mean about a four cents a pound reduction of the internal price of cotton to the extent that price supports may reflect domestic price levels, this above condition would mean that the cotton textile industry will withdraw its opposition to the approval of the reciprocal trade agreements act.

Cotton is the core of the farm bill. It is the core of the reciprocal trade agreements act.

Pass one—you pass the other also. It is just that simple. Both will pass. That is the composite opinion now expressed in the capital.

SCREWWORM

(Continued from page 1)

area, it's possible to reduce the screwworm population and eventually eradicate it.

The eradication effort now underway marks the first time in history that this new research-developed weapon of exterminating a species of destructive insects through sterile matings has been tried on such a large scale.

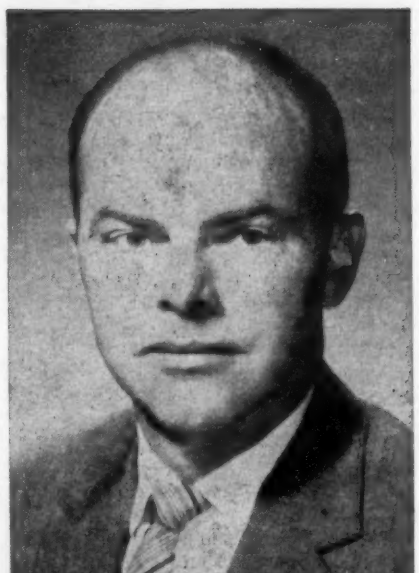
The technique has been successfully tried out in three locations by ARS entomology researchers. They got good results from a field test on Sanibel, a small island off the West Coast of Florida, in 1953. In 1954 they completely eradicated the fly from the 170-square-mile island of Curacao in the Caribbean, and a pilot-scale operation was successful in 1957 over 2,000 square miles of area around Orlando, Fla.

The mass-rearing methods and equipment used in the current program have been developed by ARS entomologists, equipment specialists, and veterinarians. The screwworm-fly colony was increased in preparation for mass rearing at the ARS entomology research laboratory at Orlando. The flies are from a native Florida strain selected for high mating capacity. Facilities there have been used to the maximum since January in trial runs to test new equipment and train personnel in fly rearing. Though distributed in relatively small numbers, the sterile flies have helped to restrict the development of screwworm populations in northern Florida.

At Sebring, an airplane hangar 160 x 200 feet in size, with a second floor added, has been converted to a fully mechanized "assembly-line" type of mass-rearing plant. All operations are synchronized to the life cycle of the insect. An adjacent building 32 x 76 feet, houses the 6 cobalt-60 irradiation units, obtained with the help of the Atomic Energy Commission. Space has been arranged for several fly-distribution centers at airports strategically located in the area to be treated.

Refrigerated storage is provided for 83,000 lb. meat and some 4,000 gal. blood used each week to produce larvae. Special air-purification equipment has been installed to get rid of toxic ammonia fumes and nauseous odors developed in larva-rearing.

Sterilized flies are delivered to airport distribution centers in air-conditioned vehicles. Cardboard cartons of flies are loaded into airplanes equipped with special devices that will open the cartons as they are released in the air. At full operation, 100,000 cartons will be dropped over the infested area weekly. Each carton will contain approximately 500 flies, half of them males. The rate of release will vary from 200 to 800 sterile males per square mile, depending on the number of screwworm flies reported by ground surveys.



P. L. Wheeler

NEW POSITION—P. L. Wheeler has been appointed to the newly created position of supervisor of new product merchandising for Bemis Bro. Bag Co. A member of the Bemis organization since 1948, Mr. Wheeler has been sales representative for the New York general sales division. He will assume his new duties in the general sales department, St. Louis. His appointment was announced by H. V. Howes, vice president and director of sales.

GEORGIA MEETING

(Continued from page 1)

County was declared third place state winner and southeast Georgia district winner. Other district winners were M. C. Southwell, Clarke County, northeast; H. D. Burton and Sons, south central, and W. H. Harris, northwest. The three state winners, along with their county agents, will have their choice of expense-paid trips to the International Livestock Show, International Dairy Show or National Dairy Congress.

J. R. Johnson, extension agronomist in charge of the grazing system program, said the state winner's motto is "efficiency." He pointed out Mr. Nunn uses to capacity every acre of his 185-acre farm. Fifty-five acres are in cropland and 69 are in permanent pastures.

Thirty-one head of Holstein, Jersey and Guernsey cattle graze pastures of common Bermuda, Dallis grass and white clover supplemented with Starr and browntop millet during the summer months. Mr. Nunn makes four seedings of millet to insure grazing during the summer and early fall, often a critical time for permanent pastures.

Winter grazing is provided by tall fescue, white clover, oats and rye grass. To carry cattle through periods of adverse weather, Mr. Nunn also puts up silage. He produces his own grain, buying only protein supplement for his feeding program. Mr. Nunn applies 500 lb. of 4-12-12 fertilizer and 50 lb. of nitrogen per acre to all pasture land. He also applies lime as needed.

Mr. Spooner, the second place winner, operates a 1,675-acre farm with 1,000 acres in pasture and the remainder in cropland. He has a herd of 300 Hereford cows and replacements, making about two acres of pasture per animal. The farm's pasture program is exceptionally good, Mr. Johnson said, with Coastal Bermuda, Pensacola and common Bahia, crimson and white clover, and oats and rye which are first grazed and then allowed to mature for grain.

Average annual fertilization rates on Mr. Spooner's pastures are 400 lb. of 4-12-12 fertilizer and 40 lb. of nitrogen per acre. Last year 60 lb. of potash per acre were applied to 300 acres having a low potash content. Fertilization of winter grain consists of 500 lb. of 0-10-20 and 60 lb. of nitrogen per acre.

The Banks Brothers, third place winners, have an 850-acre farm with 275 in cropland and 200 in permanent pasture. Their grazing system provides .75 acre of summer pasture and .86 acre of winter grazing per cow. Permanent pasture consists of Coastal Bermuda which is overseeded with oats in the fall. The Coastal receives 600 lb. of 0-10-20 fertilizer and 160 lb. of nitrogen per acre each year.

Millet and oats make up the summer supplemental grazing and vetch and rye provide winter grazing. Summer and winter pastures receive 600 lb. of 5-10-15 and 40 lb. of nitrogen per acre.

Extension service agronomists told leaders attending the meetings that Georgia farmers saved $700,000 in 1958 by shifting from low- to high-analysis fertilizers and said the savings could become even greater if the shift became more general.

In 1957 Georgia farmers used 608,413 tons of the state's most popular fertilizer—4-12-12. This fertilizer was unknown to Georgia farmers in 1945. They used only 517 tons of 3-9-6 in 1957 compared with 87,899 tons in 1945. The agronomists said 5-10-15 is another grade rapidly gaining favor with Georgia farmers, with usage increasing 240% over 1956. This fertilizer is designed to overcome the critically low potash content of many Georgia soils.

Delegations also were told by Georgia Department of Agriculture officials that preliminary figures indicate the amount of fertilizer sold in Georgia the past year was down only 1.6% despite a large portion of the state's cotton crop being placed in the soil bank.

In separate meetings, before or after the farm tours, extension service agronomy leaders met with county agents to discuss expanding the soil fertility program, which is proving so successful in six pilot counties, to 25 additional counties during the coming year. A committee from the Georgia Plant Food Educational Society, which numbered among its members the officers of the society, gave enthusiastic approval to taking this special program into the additional counties.

Contributors to the Georgia Plant Food Educational Society's special fund for the grazing system contest were:

A. D. Adair and McCarthy Brothers, Inc., Albany Warehouse Co., American Cyanamid Co., American Potash Institute, Inc., Armour Fertilizer Works, Ashcraft-Wilkinson Co., Blackshear Manufacturing Co., Bradley and Baker, W. C. Bradley and Co., Chilean Nitrate Sales Corp., Commercial Solvents Corp., Cotton Producers Assn., Cotton States Fertilizer Co., E. I. duPont de Nemours and Co., Escambia Chemical Corp., Fidelity Products Co., Fowler Fertilizer Co., Georgia Lime-Rock Co., Home Guano Co., International Minerals and Chemical Corp., Monsanto Chemical Co., Mutual Fertilizer Co., Nitrogen Division, Allied Chemical Corp., Pelham Phosphate Co., Phillips Petroleum Co., Rowe Warehouse and Fertilizer Co., F. S. Royster Guano Co., C. O. Smith Guano Co., Soperton Guano Co., Southeastern Liquid Fertilizer Co., Southern Cotton Oil Co., Southern Fertilizer and Chemical Co., Southern Nitrogen Co., Southern States Phosphate and Fertilizer Co., Spencer Chemical Co., Stevens Industries, Inc., Swift and Co., Tennessee Corp., Virginia-Carolina Chemical Corp. and Whitehead and Gholston.

New Park Site Donated by TVA

KNOXVILLE, TENN. — TVA has leased 10 acres of land on Guntersville Lake to the City of Scottsboro, Ala., to be developed by the city as a public park and boat harbor. The city proposes to improve a small inlet by dredging and by constructing piers and a launching ramp. Parking areas and picnic facilities will be provided. The lease is for 19 years. This will be the 58th local park on TVA lakes.

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SPECIALISTS IN SALES PERSONNEL FOR TWELVE YEARS

OUR SERVICE: If your request for an experienced salesman or sales executive is difficult but not unreasonable, we can meet your needs. From our applicant file or from your industry, we will produce the man you are looking for . . . or no charge.

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Cotton Council Urges Passage of Farm Legislation

(Related Story Page 1)

MEMPHIS—The National Cotton Council has thrown its support behind a bill recently reported by the Senate Agriculture Committee.

Harry S. Baker, council president, indicated that the bill (S. 4071) represents cotton's best hope for legislation that will take effect in 1959.

One of the urgent reasons for council action this year is the virtual certainty that Ezra Taft Benson, secretary of agriculture, under present law will be forced to slash cotton acreage allotments by about 20% for 1959.

Up to now, the council had advocated principles and objectives on which to base cotton legislation, but had not supported a specific farm bill. Council membership is made up of cotton producers, ginners, merchants, warehousemen, cottonseed crushers and spinners.

While agreeing that the bill is not perfect, Mr. Baker said that S. 4071 will move the industry toward expanded production and consumption of U.S. cotton. He said the bill provides for reasonable farm income; enough acreage to produce adequate supplies of all qualities of U.S. cotton; and for moving as rapidly as possible toward a competitive price, and a one-price system, for U.S. cotton.

The bill provides that during 1959 and 1960, which are considered years of transition toward a long-range cotton program, the individual farmer would be able to choose between two combinations of price support and acreage allotment. Under Choice "A," he could choose the price support level and acreage allotment as it would be computed under existing formulas. Choice "B" would give him 40% more acreage, coupled with a price support lowered by 15 percentage points of parity.

The government would support prices under Choice "A" through a purchase program. No government-owned cotton could be resold at less than 110% of the price support level under Choice "B."

Should it become law, the Senate Agriculture Committee bill would establish 16 million acres as the minimum national acreage allotment, compared with the prospect of only about 14 million acres if the present law remains unchanged. Although 16 million acres would be the minimum acreage allotment, the total cotton acreage could be increased substantially above this if a large number of farmers took advantage of their option under Choice "B."

The bill, in addition, sets up a reserve of 310,000 acres to insure that no farmer with 10 acres or less in cotton this year will have his future allotment reduced below its present level.

Beginning with the 1961 crop, price support for all farmers would be 90% of the average market price for the preceding three years, but not less than 30 cents per pound for middling one-inch cotton. Minimum government sales price in 1961 and thereafter would be 115% of the current support level.

The national acreage allotment would be based on estimated disappearance of cotton but with provision for any adjustments needed to assure adequate supplies of all qualities of cotton needed in the U.S. and foreign consuming countries. State allotments would continue at the same percentage of national allotment as in 1958.

The U.S. Department of Agriculture has indicated that it would be willing to accept a program for cotton along the lines of the proposed Senate bill.

APPEAL

(Continued from page 1)

ably would not be heard until early 1959, according to attorneys.

The 14 Long Island (N.Y.) residents had sued to stop aerial DDT sprayings against gypsy moth infestations. Non-jury trial was held in U.S. District Court, Brooklyn, N.Y., in February and March. Judge Bruchhausen held that mass spraying operations are a proper exercise of the state's police power.

Behind the judge's decision was legal endorsement of all mass sprayings, confidence of the courts in methods used by the U.S. Department of Agriculture, and the setting of a precedent upon which to base future court decisions on similar cases.

High Analysis Grades Give Good Results in Illinois Demonstrations

URBANA, ILL.—High-analysis fertilizers gave good results on a majority of the 26 southern Illinois claypan area test demonstration farms last year.

Calcium metaphosphate (0-62-0), diammonium phosphate (20-52-0) and ammonium nitrate (33½-0-0) were used by these test demonstrators in amounts recommended by the extension service, reports Fay M. Sims, University of Illinois farm management specialist and assistant supervisor of the test demonstration program.

Good effects on row crops and small grains were reported by three-fourths or more of the demonstrators. Nearly the same number rated all three fertilizers excellent in comparison with other available fertilizers.

Mr. Sims notes that a majority of demonstrators felt that the high analysis of 0-62-0 and 20-52-0 was the best feature of these fertilizers. Opinions of the best feature of 33½-0-0 were divided between its high analysis and good response.

Few complaints were recorded against any of the fertilizers, but four demonstrators said that 33½-0-0 absorbed moisture. One demonstrator attributed this to the open valves of the fertilizer bags and asked whether they could be sealed after opening to keep out moisture.

The fertilizers were used in quantities up to or exceeding 200 lb. an acre. Most demonstrators used 100 lb. or less on corn and between 100 and 200 lb. on small grains.

Most of the demonstrators felt that the fertilizers spread satisfactorily and had no harmful effects on spreading equipment. Nearly all demonstrators said that they would use the fertilizers again this year.

The fertilizer tests are one phase of a cooperative effort by the demonstrators and specialists from all departments of the University of Illinois College of Agriculture.

Pacific Plant Food Group in 9th Meeting

POCATELLO, IDAHO—More than 200 persons were present at the Pacific Northwest Plant Food Assn. meeting here July 8-10. The event was the ninth annual regional fertilizer conference of the group.

Technical talks occupied the sessions of Tuesday, and a field trip to the Aberdeen Agricultural Experiment station was the feature of Wednesday's program, July 9.

The annual banquet was held the evening of July 9 and final sessions were being held on July 10.

Norman Hibbert of the Anaconda Company was presented a certificate of appreciation for his service on the soil improvement committee of the Pacific Northwest Plant Food Assn. from which he is retiring due to the press of other business.

Agronomist Honored by College Alumni Group

CEDAR RAPIDS, IOWA—During commencement activities at Coe College, Cedar Rapids, Dr. C. Loyal W. Swanson was honored with an alumni award of merit presented in recognition of "his outstanding contribution to the field of science." He was the youngest of five graduates to receive this recognition from the American Society of Agronomy for his research in soils. In 1951, the society presented him with its Stevenson Award and a $500 honorarium. In 1956, he was elected a Fellow of the Society.

BUSINESS DEGREE

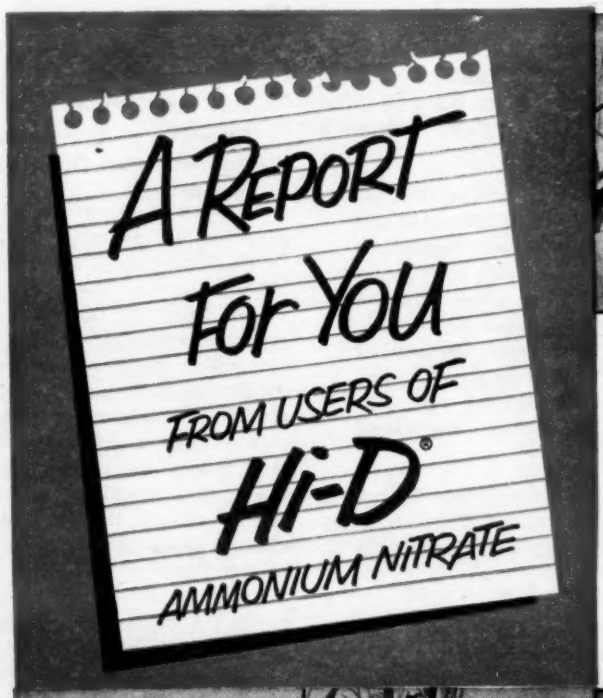
CHICAGO—John A. Corrigan, district manager for Sinclair Chemicals, Inc., has been awarded a certificate from the University of Chicago for completion of an intensive two-year course for business executives.

Kentucky Fertilizer Program Announced

LEXINGTON, KY.—The program for the annual Kentucky Fertilizer Conference to be held July 30 at the Greenville Experimental Field has been announced.

The event will get under way with tours of the experimental plots from 9 a.m. to 11 a.m. Dr. Gilbert Webster, head of the University of Kentucky department of agronomy, will speak during the morning on the topic "Our State Agronomy Program."

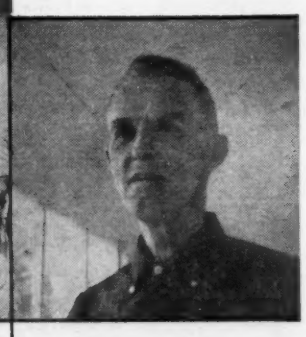
Speakers in the afternoon will be Joseph E. Burger, retired vice president and sales manager of the Corneli Seed Co., St. Louis, "How to Get Better"; Carl Chaplin and Donald Cotter, department of horticulture, who will talk about the horticultural program, and Harold Miller, department of agronomy, who will discuss the fertilizer grades recommended for 1959.



"Hi-D flows freely, stays dry, spreads evenly," says Wayne Baker.
"Used Hi-D on pasture mostly. Some in corn and cotton. Really prefer the Hi-D granules in our field machinery over other kinds of ammonium nitrate."

"Hi-D arrives dry and stays dry," says Dick Hitt, pilot.
"Put out several thousand tons of Hi-D this spring. Flows evenly from start to finish. Plane hopper holds up to 20% more material. Saves me air time. High-density Hi-D granules distribute evenly on the ground."

"The men all like the way Hi-D handles," reports Earl A. Johnson.
"We have about 1,400 Guernsey dairy cattle — one of the largest herds in the world. We like Hi-D because it arrives with no lumps. What we don't use at once stores very well. Hi-D throws nicely."



"Best moisture-proof bag I've ever seen," says E. G. Farrand.
"Use Hi-D on Coastal Bermuda grass and corn, plus oats and rye in winter. A really free-flowing material, you never get too much or too little. Hi-D is always in good condition even after storing."

NEW GRANULE Hi-D
AMMONIUM NITRATE
Unique Shape • High Density •
Controlled Size • Free Flow •
Dry Flow • 2-Speed Nitrogen
Spreads Evenly • Stays Put •
Goes To Work Fast
NO OTHER
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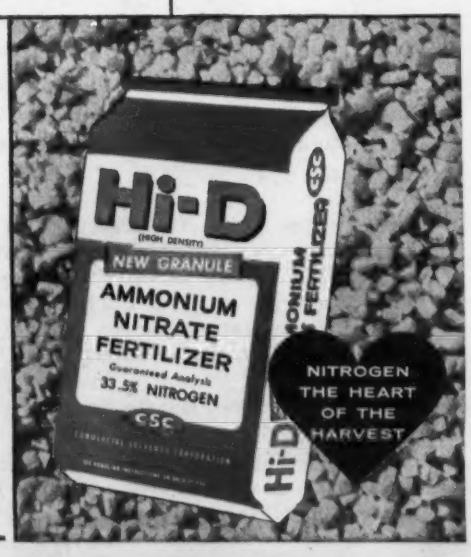

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Southern states.

State Recommendations Reveal Big Sales Potential for Off-Season Fertilization

SELLING fertilizers and pesticides in the off-season is sometimes more of a dream than a reality, yet there still seems to be a big opportunity for those aggressive firms who wish to go after the business in the fall of the year as well as in the spring.

That application of fertilizer materials in the fall and winter months is both economical and desirable in many parts of the country is pretty well known. In regions where the soil and rainfall conditions permit off-season application, both farmers and the fertilizer industry have profited by shifting much of the usual spring work to a more convenient time of year.

It is a source of satisfaction to the farmer, who has stored his fertilizer in the soil overwinter, to know that regardless of how wet and soggy his fields may be in the spring, the plant food is already in the ground, ready to feed the roots of the new crop. While his neighbors fret because of their inability to get application equipment into the fields, this far-sighted operator occupies himself with other important spring chores.

The fertilizer industry, with fresh memories of the unusually tough spring of 1958, can do some calculating on how many additional tons of fertilizer might have been delivered if a better selling job had been done last fall.

Elsewhere in this week's Croplife are recommendations by some Southern states for certain applications of fertilizer for fall and winter months. In addition, there are some instances mentioned where pesticides might be used in the fall, also.

At least two factors should be pointed out. One is the surprising number of possibilities for fertilizer sales in the fall of the year, and the other is the wide variance between the amounts recommended for optimum benefit, and that actually consumed on the crops named. If the rule of thumb holds true in these states, that is usually considered accurate over most of the country, consumption might be doubled if state recommendations were followed to the letter.

Here is a potential for sales! Certainly far from limited to the Southern states included in the roundup covered in this issue, the fertilizer industry can realize extra tonnage in many parts of the country through extra emphasis on off-season merchandising.

To bring before the trade some of the sales helps available from suppliers, Croplife in this issue (pages 12 and 13) pictures a few of the literally hundreds of available store posters, newspaper advertising mats, booklets and pamphlets to enclose in billing envelopes, window and counter cards, banners, decals, brochures, and merchandise displays. Suppliers make these helps available to their dealers and distributors, and in most cases the materials are available to any dealer who handles the line mentioned. The helps are of course not all made specifically for off-season sales, most could be used at any time of the year.

The suppliers urge dealers and distributors to write for these and other merchandising helps. We hope this will be done.

In the next three issues, namely those of July 21, 28, and August 4, Croplife will continue its series of articles and special features promoting the general theme of merchandising fertilizer and pesticides in the off-season. We hope that the presentations will be both interesting and helpful to many in the trade.

Georgia Citizens Learn About Insects in Campaign

CITIZENS of Georgia were reminded last week that insects are expensive creatures to keep around, and that defenses against them should be sharpened and strengthened. Officially, the week of July 7-12 was known as "Insect Control Week," enjoying full support of Georgia's executive department following a proclamation by Governor Marvin Griffith urging all citizens in the state to join in the effort to control insect pests.

The governor, in his proclamation, would have done credit to a first rate insecticide salesman, pointing out that the damage caused by insects to crops, livestock, forests, buildings, and stored products in the state amounts to an estimated loss of $100 million annually. In addition, the governor said, insects are a constant menace to the health and general welfare to the people of his state.

Cooperating in the anti-insect endeavor were entomologists from the University of Georgia's College of Agriculture, county agents, and home demonstration agents. Dr. C. R. Jordan, entomologist for the state extension service, declared that observance of the week will give to these leaders in the fight to control insects, special opportunities to acquaint the Georgians with the extensive damage done by insect pests.

Of similar importance was the impact of dramatization of educational programs in which the general public was informed on effective control methods, based on scientific research for the control of destructive pests.

We have heard of many special "weeks" of much less significance, like "Be kind to your mother-in-law week"; but setting aside a period for insect control strikes us as both sensible and educational. The more aware the public becomes of the menace of bugs, agricultural and otherwise, the stronger will be the reaction against the cry of fear-mongers who maintain that the insects are less harmful than are the pesticides used to control them.

Pesticides a Good Bet

Among the economic facts that should be getting through to farmers are those telling of savings made possible by pesticides. It has become a rather well-known fact that for every dollar spent for fertilizers, a good farmer can realize a return of anywhere from $3 to $6, but precise figures on pesticides have not been so easily available.

However, agricultural economists in Colorado have made some astoundingly favorable calculations on the returns from pesticides which should make even the most skeptical farmer sit up and take notice.

For every dollar spent by Colorado farmers for insect control in 1957, they realized a return of $23, it was reported. Growers of potatoes, tomatoes, wheat, lettuce, corn and beans in Colorado spent $1,084,000 to prevent insect damage, and by so doing gained an estimated $23,368,000 in value of undamaged crops. However, the report indicates that insects caused losses exceeding $7 million to unsprayed crops.

A return of 23-1 is a mighty good bet . . . particularly when it is a relatively "sure thing."

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Croplife

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

July 24—Colorado State University Field Day, San Juan Basin Ranch Station, Hesperus, Colo.

July 25—Colorado State University Field Day, Western Slope Branch Station, Austin, Colo.

Meeting Memos listed above are being listed in this department this week for the first time.

July 13-16—American Society of Agronomy, Northeast Branch, Cornell University, Ithaca, N.Y.

July 13-15—Plant Food Institute of Virginia and North Carolina, Summer meeting, Cavalier Hotel, Raleigh, N.C.

July 16-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 24 — West Virginia University Agronomy Field Day, Ohio Valley Experiment Station, Point Pleasant, W.Va.

July 27-29—New Mexico Grain and Feed Dealers Assn., Summer Meeting, Hotel Clovis, Clovis, N.M.; Parley Jensen, P.O. Box 616, Albuquerque, N.M., Assistant Secretary.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 4—National Joint Committee on Fertilizer Application, Annual Meeting, Purdue University, Lafayette, Ind.

Aug. 4-8—American Society of Agronomy, Annual Meeting, Purdue University, Lafayette, Ind.

Aug. 12-13—Ohio Pesticide Institute, Summer Field Tour, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Wooster, Institute Secretary.

Aug. 12-14—Beltsville Cotton Mechanization Conference, Civic Auditorium, Brownsville, Texas; Sponsored by the National Cotton Council.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Oct. 30—Annual Southeastern Soil Fertility Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 10-11—Agricultural Aviation Research Conference, Milwaukee.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-4—North Central Weed Control Conference, Netherland Hilton Hotel, Cincinnati.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 9-11—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

STATISTICIAN TO RETIRE

SAN FRANCISCO—After 36 years of public service, Niels I. Nielsen, agricultural statistician in charge of the Federal State Crop Reporting service for California, has announced he will retire on July 31. Mr. Nielsen will be succeeded by Ward Henderson, who has served in the California Crop Reporting Office for the past 18 months as assistant agricultural statistician, in charge.

CALENDAR FOR 1958-59

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Rath Packing Official To Head Youth Group

CHICAGO—John W. Coverdale, 75, an early director of the feed, grain and fertilizer division of the Rath Packing Co., Waterloo, Iowa, and later head of the firm's agricultural bureau for livestock marketing before retiring to assume public relations work with Rath, has been honored by selection as president of the National Committee on Boys and Girls 4-H Club work, the organization has announced.

Mr. Coverdale is credited with organizing the National Livestock and Meat Board in the 1920's, and prior to that time was instrumental in establishing the Iowa and the National Farm Bureaus. He was the first secretary of the American Farm Bureau Federation. Recently Mr. Coverdale received an honorary doctor of science degree from his alma mater, Iowa State College.

He moves up to the new post after helping found the organization and serving as a director since 1921. Mr. Coverdale succeeds Thomas Wilson, 89, former chairman of Wilson & Co., Chicago, who has served continuously as president since 1924.

Takes New Post at Arkansas University

FAYETTEVILLE, ARK.—Dr. Lyell F. Thompson assumed the duties of leader of the University of Arkansas' soil testing project, July 1, Dr. Lippert S. Ellis, dean and director of the College of Agriculture and Home Economics, announced.

Dr. Thompson replaces Dr. R. L. Beacher, who is now a field representative with the American Plant Food Institute.

As associate professor of agronomy, Dr. Thompson will be in charge of activities of the Soil Testing and Research Laboratory of the Arkansas Agricultural Experiment Station, including the Eastern Arkansas Branch Laboratory at Marianna. In addition, he will teach courses in soils at the university.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

All Want Ads cash with order.

MISCELLANEOUS

BRUSH AND WEED KILLER

KILL SUBMERSED water weeds which foul up motor propellers, tangle fishing gear and choke irrigation ditches with R-H Granular Weed Rhap. Inexpensive, easy to use, sure results. For details write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

BUSINESS OPPORTUNITIES

FOR SALE — REMAINING SKELETON steel structure and concrete work of our tornado destroyed fertilizer plant at Fargo, N. D. Excellent for construction of suitable warehouse. Plenty of room for industrial expansion on this railroad leased site. Survey this property and make us an offer. Address all correspondence to Ted B. Schultz, Asst. General Manager, Peavey Elevators, 809 Grain Exchange, Minneapolis 15, Minn.

RICE INSECT BULLETIN

FAYETTEVILLE, ARK.—Factors influencing stored grain insect infestations in farm-stored rice are presented in Bulletin 600 by Phil Rouse, Dr. L. H. Rolston and Dr. Charles Lincoln with the entomology department of the Arkansas Agricultural Experiment Station.

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How Hercules Helps Promote Sound Insecticide Usage

In advertising messages prepared for the cotton grower, Hercules tries to answer the questions asked most frequently about cotton insecticides and their use. Direct mail, TV and radio advertising, and dealer aids all stress the benefits the farmer can expect from a *complete* insect control program based on the correct use of toxaphene formulations.

Such messages also direct the grower to his dealer for a copy of a remarkable new booklet, "A Practical Cotton Insect Control Program." If you do not already have a supply of these booklets for your customers, contact your nearest Hercules Powder Company representative, or write direct to Wilmington.

Questions and Answers About Cotton Insecticide Usage

Q ***Why do some growers harvest high-grade cotton early while their neighbors are still battling late-season boll weevils?***

High quality fiber usually comes from early cotton. Growers who strive for early production start an insect control program early to get the crop off to a fast start. Carefully-timed insecticide applications all through the season protect the crop, speed it toward maturity, and keep insect populations low.

Q ***How many applications do they make during the early season?***

A study of the most successful growers shows they make two applications early for thrips, three more applications between the time first squares form and the time cotton reaches the first bloom stage. These treatments not only control thrips, fleahoppers and plant bugs, but strike at the overwintered weevils *before* females can lay their eggs.

Q ***What about late-season applications?***

In some areas, after the first bloom appears, top growers start additional applications when weevil counts reach 10 per cent, continue applications every five days until infestations are below the 10 per cent level. In other areas, the early program alone can be adequate. The number of late-season applications needed depends a lot on the weather.

Q ***Doesn't this cost a lot more than a late-season program only?***

No. Applications early in the season are relatively inexpensive. They more than pay their cost by eliminating some of the late-season treatments which require higher dosages to cover the larger plants. Cotton treated with *only* late-season applications usually has to set fruit when boll weevils and other insects are at their peak.

Q ***Where can I get more information about a complete cotton insect control program?***

See your dealer for your free copy of the new booklet "A Practical Cotton Insect Control Program." If he can't supply you, write to the address below, giving your dealer's name and address. We will send you your book, and furnish him copies for other growers in your community interested in such a program.

Agricultural Chemicals Division

HERCULES POWDER COMPANY
INCORPORATED

900 Market Street, Wilmington 99, Delaware

Manufacturers of toxaphene

NX58-6R